



E-RATE FY2022 PROPOSAL TO:

# Community Unit School District 200

Submitted By:

Sentinel Technologies, Inc. – SPIN #: 143008231

MARCH 3, 2022



**TABLE OF CONTENTS**

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**GENERAL CONTACT INFORMATION ..... 3**

**COVER LETTER..... 4**

**EXECUTIVE SUMMARY..... 5**

**PRICING ..... 6**

**SCOPE OF WORK ..... 11**

Executive Summary 11

Project Overview--Project Phases 11

Scope of Work 12

**PROPOSAL ASSUMPTIONS ..... 18**

General Proposal Assumptions 18

Cisco Campus - Network Switching 20

**SAMPLE OF OUR ILLINOIS EDUCATION CUSTOMERS ..... 21**

**ACCEPTANCE OF RFP TERMS ..... 22**

**E-RATE PROJECT AND PAYMENT TERMS..... 23**

**E-RATE EXPERIENCE ..... 25**

**APPENDIX A – MANUFACTURE SUPPORT DOCUMENTS ..... 26**

**APPENDIX B – SENTINEL TECHNOLOGIES OVERVIEW..... 34**

## General Contact Information

### SENTINEL CONTACT INFORMATION

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## Cover Letter

March 3, 2022

Jason Spencer  
Community Unit School District 200  
130 W. Park Ave.  
Wheaton, IL 60187

Dear Jason,

Sentinel Technologies, Inc. (founded in 1982, Federal Tax ID # 36-3199182) is pleased to submit this proposal in response to FCC Form 470 Number 22001809 for Funding Year 2022. The response within provides CUSD 200 with a networking proposal that will effectively address the overall objectives outlined in the 470. We have provided the exact request for a Cisco Data Network, as well as both options for wireless with Cisco Meraki and Juniper MIST.

Sentinel's experienced professional staff, commitment to on-going training, concentration of resources, and assurance of customer satisfaction are the cornerstones of the company. Sentinel prides itself on servicing our clients utilizing our proven track record of success, executable processes, and vision. Our success is directly attributed to our ability to design and implement Sentinel's vast technical expertise and depth of resources to meet and exceed our customer's expectations. Our team is exceptional, our technicians and engineers are skilled, and our methodology is mature, proven, and reliable. This unique combination of ability, reliability, and experience allows Sentinel to provide its customers with unmatched value and efficiency.

Thank you for this opportunity to grow this already strong partnership with your District. Sentinel looks forward to meeting and exceeding the business objectives described within the RFP.

Sincerely,

Chris Vasquez  
*Team Lead, Sales*  
630.769.9654  
cvasquez@sentinel.com

## Executive Summary

Sentinel Technologies is pleased to present our proposal under SPIN 143008231. The pricing quoted provides special one-time provisions from our manufacturer partner, Cisco. Our companies have partnered for many years which has allowed the two companies to bring our strengths together for a common goal.

Sentinel Technologies is a Master Certified Gold Cisco Partner. Please see more detail contained within our proposal. We employ full-time engineers and project managers (not contractors) which means that the district will have a high level of continuity and accountability from Sentinel.

Sentinel Technologies has vast experience installing Network Infrastructure and Wireless in schools within the E-Rate program. In this proposal, we have included specific K-12 school references that have completed projects using E-Rate funds for your review. Please contact these references to learn of Sentinel's outstanding work and reputation.

We look forward to working with you and are happy to answer any questions about our technical design, scope of work and qualifications.

## Pricing

### SUMMARY

### E-Rate Switch Refresh

#### Hardware and Software

		Extended Price
C9300-48UXM-EDU Switch	\$	905,484.00
10GBASE-SR SFP Module	\$	17,013.00
UPS SMART 2200VA	\$	22,220.00
<b>Hardware and Software Total</b>	<b>\$</b>	<b>944,717.00</b>

**Solution Subscriptions** - Unless explicitly indicated otherwise within this contract, the below term for these subscription services will automatically renew, absent at least ninety (90) days' notice of cancelation by Customer before the start of the renewal term. For subscription services that do not automatically renew, Customer must provide Sentinel with at least ninety (90) days' notice of its intention to renew the services and shall hold Sentinel harmless from any service interruption to result from the cessation of services due to Customer's failure to provide timely notice as stated herein.

		Extended Price
DNA Essentials 3 Year	\$	59,155.20
<b>Subscriptions Total</b>	<b>\$</b>	<b>59,155.20</b>

**TOTAL PROJECT** - Project Total Cost is based on the combined purchase of all Hardware/Software, Professional Services and Solution Maintenance from Sentinel as detailed in the attached Bill of Materials. Unbundling or materially reducing any of these essential elements of the solution may result in modifications to the cost of the remaining elements.

		Extended Price
Hardware and Software	\$	944,717.00
Solution Subscriptions	\$	59,155.20
Professional Services	\$	99,000.00
<b>Project Total</b>	<b>\$</b>	<b>1,102,872.20</b>
		<i>Plus applicable tax, shipping &amp; handling</i>

**PRICING**

**C9300-48UXM-EDU SWITCH**

<b>C9300-48UXM-EDU Switch</b>						
<b>Part Number</b>	<b>Description</b>	<b>Qty</b>	<b>Unit Price</b>	<b>Ext Price</b>	<b>Special Notes</b>	
C9300-48UXM-EDU	Catalyst 9300 48-port(12 mGig&36 2.5Gbps), K12	120	\$ 5,784.00	\$ 694,080.00		
C9300-NW-E-48	C9300 Netw ork Essentials, 48-port license	120	\$ -	\$ -		
PWR-C1-715WDC	715W DC Pow er Supply	120	\$ 661.00	\$ 79,320.00		
C9300-SPS-NONE	No Secondary Pow er Supply Selected	120	\$ -	\$ -		
C9300-SSD-NONE	No SSD Card Selected	120	\$ -	\$ -		
STACK-T1-50CM	50CM Type 1 Stacking Cable	120	\$ 45.00	\$ 5,400.00		
CAB-SPWR-30CM	Catalyst Stack Pow er Cable 30 CM	120	\$ 42.00	\$ 5,040.00		
NM-BLANK-T1	Cisco Catalyst Type 1 Netw ork Module Blank	120	\$ -	\$ -		
PWR-C1-BLANK	Config 1 Pow er Supply Blank	120	\$ -	\$ -		
C9300-DNA-E-48	C9300 DNA Essentials, 48-Port Term Licenses	120	\$ -	\$ -		
CON-SSTCM-C93E48	SOLN SUPP SW SUBC9300 DNA Essentials	120	\$ 228.00	\$ 27,360.00		
C9300-NM-8X=	Catalyst 9300 8 x 10GE Netw ork Module	81	\$ 1,164.00	\$ 94,284.00		
NETWORK-PNP-LIC	Netw ork Plug-n-Play Connect for zero-touch device deployment	120	\$ -	\$ -		
SC9300UK9-175	Cisco Catalyst 9300 XE 17.5 UNIVERSAL UNIVERSAL	120	\$ -	\$ -		
<b>Hardware and Software Sub-Total:</b>				<b>\$ 905,484.00</b>		

**10GBASE-SR SFP MODULE**

<b>10GBASE-SR SFP Module</b>						
<b>Part Number</b>	<b>Description</b>	<b>Qty</b>	<b>Unit Price</b>	<b>Ext Price</b>	<b>Special Notes</b>	
SFP-10G-SR-S=	10GBASE-SR SFP Module, Enterprise-Class	53	\$ 321.00	\$ 17,013.00		
<b>Hardware and Software Sub-Total:</b>				<b>\$ 17,013.00</b>		

**UPS SMART 2200VA**

<b>UPS SMART 2200VA</b>						
<b>Part Number</b>	<b>Description</b>	<b>Qty</b>	<b>Unit Price</b>	<b>Ext Price</b>	<b>Special Notes</b>	
SMART2200RMXL2U	UPS SMART 2200VA 1920WAVR 120V PERP 8OUT 2URM LCD USB DB9 EXTENDED RU	20	\$ 1,111.00	\$ 22,220.00		
<b>Hardware and Software Sub-Total:</b>				<b>\$ 22,220.00</b>		

**DNA ESSENTIALS 3 YEAR**

<b>DNA Essentials 3 Year</b>								
<b>Part Number</b>	<b>Description</b>	<b>Qty</b>	<b>Unit Price</b>	<b>Ext Price</b>	<b>Initial Term</b>	<b>Billing Model</b>	<b>Renewal Term</b>	
C9300-DNA-E-48-3Y	C9300 DNA Essentials, 48-port - 3 Year Term License	120	\$ 492.96	\$ 59,155.20	36 Months	Prepay	Requote	
<b>Initial Term Subscriptions Sub-Total:</b>				<b>\$ 59,155.20</b>				

PRICING

ALTERNATE SUMMARY – OPTION 1

E-Rate FY2022

Hardware and Software & Maintenance & Support

Licensing is included for 5 Years

Qty 438 MIST-AP43-1S-5Y	\$	286,014.00
<b>Hardware and Software Total</b>	<b>\$</b>	<b>286,014.00</b>

**Solution Subscriptions** - Unless explicitly indicated otherwise within this contract, the below term for these subscription services will automatically renew, absent at least ninety (90) days' notice of cancelation by Customer before the start of the renewal term. For subscription services that do not automatically renew, Customer must provide Sentinel with at least ninety (90) days' notice of its intention to renew the services and shall hold Sentinel harmless from any service interruption to result from the cessation of services due to Customer's failure to provide timely notice as stated herein.

**TOTAL PROJECT** - Project Total Cost is based on the combined purchase of all Hardware/Software, Professional Services and Solution Maintenance from Sentinel as detailed in the attached Bill of Materials. Unbundling or materially reducing any of these essential elements of the solution may result in modifications to the cost of the remaining elements.

		<b>Extended Price</b>
Hardware and Software	\$	286,014.00
Solution Maintenance & Support		Included
Solution Subscriptions		Included
<b>Project Total</b>	<b>\$</b>	<b>286,014.00</b>
		<i>Plus applicable tax, shipping &amp; handling</i>

QTY 438 MIST-AP43-1S-5Y

Qty 438 MIST-AP43-1S-5Y					
Part Number	Description	Qty	Unit Price	Ext Price	Special Notes
MIST-AP43-1S-5Y	MIST AP43 WITH 5YR / 1SVC BNDL WRLS	438	\$ 653.00	\$ 286,014.00	
<b>Hardware and Software Sub-Total:</b>				<b>\$ 286,014.00</b>	



**PRICING**

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**ALTERNATE SUMMARY – OPTION 2**

**E-Rate FY2022**

**Hardware and Software & Maintenance & Support**

**Licensing is included for 5 Years**

	<b>Extended Price</b>	
Qty 438 MIST-AP43-2S-5Y	\$	304,410.00
<b>Hardware and Software Total</b>	<b>\$</b>	<b>304,410.00</b>

**Solution Subscriptions** - Unless explicitly indicated otherwise within this contract, the below term for these subscription services will automatically renew, absent at least ninety (90) days' notice of cancelation by Customer before the start of the renewal term. For subscription services that do not automatically renew, Customer must provide Sentinel with at least ninety (90) days' notice of its intention to renew the services and shall hold Sentinel harmless from any service interruption to result from the cessation of services due to Customer's failure to provide timely notice as stated herein.

**TOTAL PROJECT** - Project Total Cost is based on the combined purchase of all Hardware/Software, Professional Services and Solution Maintenance from Sentinel as detailed in the attached Bill of Materials. Unbundling or materially reducing any of these essential elements of the solution may result in modifications to the cost of the remaining elements.

	<b>Extended Price</b>	
Hardware and Software	\$	304,410.00
Solution Maintenance & Support		Included
Solution Subscriptions		Included
<b>Project Total</b>	<b>\$</b>	<b>304,410.00</b>
<i>Plus applicable tax, shipping &amp; handling</i>		

**QTY 438 MIST-AP43-2S-5Y**

Qty 438 MIST-AP43-2S-5Y					
Part Number	Description	Qty	Unit Price	Ext Price	Special Notes
MIST-AP43-2S-5Y	AP43 WITH 5YR / 2SVC BNDL WRLS	438	\$ 695.00	\$ 304,410.00	
<b>Hardware and Software Sub-Total:</b>				<b>\$ 304,410.00</b>	

**PRICING**

**ALTERNATE SUMMARY – OPTION 3**

**E-Rate FY2022**

**Hardware and Software**

		<b>Extended Price</b>
Qty 438 Meraki MR56 APs	\$	360,912.00
<b>Hardware and Software Total</b>	<b>\$</b>	<b>360,912.00</b>

**Solution Subscriptions** - Unless explicitly indicated otherwise within this contract, the below term for these subscription services will automatically renew, absent at least ninety (90) days' notice of cancelation by Customer before the start of the renewal term. For subscription services that do not automatically renew, Customer must provide Sentinel with at least ninety (90) days' notice of its intention to renew the services and shall hold Sentinel harmless from any service interruption to result from the cessation of services due to Customer's failure to provide timely notice as stated herein.

		<b>Extended Price</b>
Qty 438 AP ENT Licensing 5YR	\$	81,209.58
<b>Subscriptions Total</b>	<b>\$</b>	<b>81,209.58</b>

**TOTAL PROJECT** - Project Total Cost is based on the combined purchase of all Hardware/Software, Professional Services and Solution Maintenance from Sentinel as detailed in the attached Bill of Materials. Unbundling or materially reducing any of these essential elements of the solution may result in modifications to the cost of the remaining elements.

		<b>Extended Price</b>
Hardware and Software	\$	360,912.00
Solution Maintenance & Support		Included
Solution Subscriptions	\$	81,209.58
<b>Project Total</b>	<b>\$</b>	<b>442,121.58</b>
		<i>Plus applicable tax, shipping &amp; handling</i>

**QTY 438 MERAKI MR56 APs**

Qty 438 Meraki MR56 APs					
Part Number	Description	Qty	Unit Price	Ext Price	Special Notes
MR56-HW	Meraki MR56 Wi-Fi 6 Indoor AP	438	\$ 824.00	\$ 360,912.00	
				<b>Hardware and Software Sub-Total:</b>	<b>\$ 360,912.00</b>

**QTY 438 AP ENT LICENSING 5YR**

Qty 438 AP ENT Licensing 5YR								
Part Number	Description	Qty	Unit Price	Ext Price	Initial Term	Billing Model	Renewal Term	
LIC-ENT-5YR	Meraki MR Enterprise License, 5YR	438	\$ 185.41	\$ 81,209.58	60 Months	Prepay	Requote	
				<b>Initial Term Subscriptions Sub-Total:</b>				<b>\$ 81,209.58</b>

## Scope of Work

### Executive Summary

Wheaton School District 200 is looking to refresh their current Cisco switching with new Cisco 9300 switching solution. It is the intent of this engagement that Sentinel will architect, design, and implement the project according to Sentinel established best practices and, in a manner, ready for production computing. During this project, knowledge transfer of general administration tasks, points of scale, and the environment will be provided to prepare the customer staff moving forward after the engagement.

The next section “Project Overview” highlights the main phases involved in this project. The “Scope of Work” section then lays out in further detail what is covered as part of this project. Finally, “Customer Responsibilities and Assumptions” details important assumptions Sentinel has made in discussion with Wheaton School District’s Team.

### Project Overview--Project Phases

#### PHASE 1 - PROJECT INITIATION MEETING

Sentinel Project Management will coordinate a kick-off meeting to review and approve the Scope of Work provided to the Customer. Customer and Sentinel provided resources will be introduced and their relevant roles for the project discussed. Sentinel Project Management will then coordinate a time for a site visit by Sentinel Engineers in order to draft a blueprint of all proposed work which will be provided to the Customer. High level timelines for project milestones will also be identified and discussed.

#### PHASE 2 - ANALYSIS & DESIGN

Sentinel engineers will perform a high-level audit of the Customer’s relevant infrastructure. The data collected from this audit will be used to generate a design for the implementation of the solution. Sentinel engineers will inform the Customer of any design requirements that will need to be completed by the Customer’s IT staff prior to the start of the next phase (such as provisioning of storage space, acquisitions of licenses, and other essential design components not covered within this document). Upon acceptance of the work as detailed within the blueprint by the Customer, Sentinel engineers and project managers will then coordinate specific dates and times appropriate for accommodating the nature of the work involved (i.e. work which will require outages will be scheduled during appropriate maintenance windows).

#### PHASE 3 - STAGING

During the staging phase, equipment will be unboxed, burned-in, configured and tested off-site before being repacked and delivered for onsite implementation. This ensures maximum efficiency and quality while minimizing the disruptions and impacts to the Customer’s environment.

### PHASE 4 - IMPLEMENTATION

Sentinel engineers will proceed with the implementation of all items specified within this Scope of Work and further detailed in the Customer approved Design Document.

#### *Campus Network Switching*

The Campus Network Switching solution will be installed and configured at all relevant sites as defined in the Implementation section.

### PHASE 5 - MIGRATIONS/CUTOVER

After implementations are complete, Sentinel engineers will proceed with all migrations and cutovers. Sentinel engineers will work with Sentinel's project managers to coordinate any needed maintenance windows for the completion of the project.

### PHASE 6 - POST SUPPORT

Sentinel engineers will be dedicated to being available for the resolution of any problems or issues that arise during the post support portion of the project.

### PHASE 7 - PROJECT COMPLETION

Upon conclusion of all other phases of work Sentinel's engineers will provide the Customer with updated design documents for the project. Sentinel's project management team will then arrange for a meeting with the Customer to review the status of all project items. If no project items remain open Sentinel's project managers will request that the Customer sign off on the project, thus closing the project at that time.

## Scope of Work

### PLANNING AND PRE-ENGAGEMENT PREPARATION

- Identification of key Customer project team members with whom Sentinel will work to accomplish the tasks defined in this Scope.
- Review required hardware, software, networking and facilities required to successfully complete this engagement.

### ANALYSIS & DESIGN

#### *General*

- Analyze the current environment to make sure the environment is ready for infrastructure implementation based upon the assumptions laid out in the next section.
- Engage with the Customer team to brainstorm the technical requirements and use case design for the implementation.
- Develop specific requirements, design and use case specifications blueprint document based upon Customer discussion.

### IMPLEMENTATION & UPGRADE – CAMPUS NETWORK SWITCHING

#### *Implementation and Configuration – Campus Network Switching*

##### **(Wheaton North High School)**

- Sentinel will install and configure (46) Catalyst 9300 48-port (12 mGig&36 2.5Gbps), K12, with DNA Essentials licensing
  - Rack and power up to (46) Campus access switches in customer provided racks within the site.
  - 46 switches will be configured as stackwise access switches with respective uplink modules.
  - Configure all necessary Layer 2 VLANs within the site.
  - Configure uplink ports from aggregation to access switches.
  - Configure the switch hostname, domain name, NTP, and DNS on the newly deployed switches.
  - Configure EIGRP/OSPF routing if required.
  - Configure spanning-tree, as necessary, on the newly deployed switches.
  - Perform a code upgrade on the newly deployed switches to the latest Cisco recommended code versions, or a customer requested and documented code version.
  - Any routing configuration changes on existing switches are not included but can be added with an approved project change request.
  - Label, as necessary, and patch new or existing customer provided cabling for the interfaces on the newly deployed switches within the site. No relocation or installation of cabling other than standard intra-rack patch cables is included but this can be added with an approved project change request.

#### *Implementation and Configuration – Campus Network Switching*

##### **(Wheaton South High School)**

- Sentinel will install and configure (46) Catalyst 9300 48-port (12 mGig&36 2.5Gbps), K12, with DNA Essentials licensing
  - Rack and power up to (46) Campus access switches in customer provided racks within the site.
  - 46 switches will be configured as stackwise access switches with respective uplink modules.
  - Configure all necessary Layer 2 VLANs within the site.
  - Configure uplink ports from aggregation to access switches.
  - Configure the switch hostname, domain name, NTP, and DNS on the newly deployed switches.
  - Configure EIGRP/OSPF routing if required.
  - Configure spanning-tree, as necessary, on the newly deployed switches.
  - Perform a code upgrade on the newly deployed switches to the latest Cisco recommended code versions, or a customer requested and documented code version.

- Any routing configuration changes on existing switches are not included but can be added with an approved project change request.
- Label, as necessary, and patch new or existing customer provided cabling for the interfaces on the newly deployed switches within the site. No relocation or installation of cabling other than standard intra-rack patch cables is included but this can be added with an approved project change request.

### *Implementation and Configuration – Campus Network Switching* **(Monroe Middle School)**

- Sentinel will install and configure (10) Catalyst 9300 48-port (12 mGig&36 2.5Gbps), K12, with DNA Essentials licensing
  - Rack and power up to (10) Campus access switches in customer provided racks within the site.
  - 10 switches will be configured as stackwise access switches with respective uplink modules.
  - Configure all necessary Layer 2 VLANs within the site.
  - Configure uplink ports from aggregation to access switches.
  - Configure the switch hostname, domain name, NTP, and DNS on the newly deployed switches.
  - Configure EIGRP/OSPF routing if required.
  - Configure spanning-tree, as necessary, on the newly deployed switches.
  - Perform a code upgrade on the newly deployed switches to the latest Cisco recommended code versions, or a customer requested and documented code version.
  - Any routing configuration changes on existing switches are not included but can be added with an approved project change request.
  - Label, as necessary, and patch new or existing customer provided cabling for the interfaces on the newly deployed switches within the site. No relocation or installation of cabling other than standard intra-rack patch cables is included but this can be added with an approved project change request.

### *Implementation and Configuration – Campus Network Switching* **(Monroe Middle School)**

- Sentinel will install and configure (10) Catalyst 9300 48-port (12 mGig&36 2.5Gbps), K12, with DNA Essentials licensing
  - Rack and power up to (10) Campus access switches in customer provided racks within the site.
  - 10 switches will be configured as stackwise access switches with respective uplink modules.
  - Configure all necessary Layer 2 VLANs within the site.
  - Configure uplink ports from aggregation to access switches.
  - Configure the switch hostname, domain name, NTP, and DNS on the newly deployed switches.

- Configure EIGRP/OSPF routing if required.
- Configure spanning-tree, as necessary, on the newly deployed switches.
- Perform a code upgrade on the newly deployed switches to the latest Cisco recommended code versions, or a customer requested and documented code version.
- Any routing configuration changes on existing switches are not included but can be added with an approved project change request.
- Label, as necessary, and patch new or existing customer provided cabling for the interfaces on the newly deployed switches within the site. No relocation or installation of cabling other than standard intra-rack patch cables is included but this can be added with an approved project change request.

### *Implementation and Configuration – Campus Network Switching* **(Edison Middle School)**

- Sentinel will install and configure (8) Catalyst 9300 48-port (12 mGig&36 2.5Gbps), K12, with DNA Essentials licensing
  - Rack and power up to (8) Campus access switches in customer provided racks within the site.
  - 8 switches will be configured as stackwise access switches with respective uplink modules.
  - Configure all necessary Layer 2 VLANs within the site.
  - Configure uplink ports from aggregation to access switches.
  - Configure the switch hostname, domain name, NTP, and DNS on the newly deployed switches.
  - Configure EIGRP/OSPF routing if required.
  - Configure spanning-tree, as necessary, on the newly deployed switches.
  - Perform a code upgrade on the newly deployed switches to the latest Cisco recommended code versions, or a customer requested and documented code version.
  - Any routing configuration changes on existing switches are not included but can be added with an approved project change request.
  - Label, as necessary, and patch new or existing customer provided cabling for the interfaces on the newly deployed switches within the site. No relocation or installation of cabling other than standard intra-rack patch cables is included but this can be added with an approved project change request.

### **CUTOVER/MIGRATION STRATEGY**

Sentinel has provided Engineering and Project Management professional services to support a SINGLE cutover/migration strategy. The project team will deploy the solution within an estimated 5 cutover window(s) per switching closet and per datacenter. Any additional cutovers, or phased installation work will be added into scope via the change order (PCR) process and may require additional professional services to complete.

### *Cutover Planning Services Provided by Sentinel*

Installation/Cutover Planning – Prior to any cutover, the Sentinel PM and Lead Engineer on the project will provide a “Solution Installation and Cutover Plan” which details the following:

- Start time and End time that is targeted for the maintenance window required for the cutover
- Step by step plan for the work that is to be done prior to the installation, during the installation, and after the installation
- Task ownership for each of the tasks identified
- Task durations for each of the tasks identified
- Back-out plan – along with a timeframe that identifies when we will initiate the back out plan
- Test and Acceptance plans to be executed

Once the cutover/installation plan has been created, the Sentinel Project Team and the customer will meet to review and approve the plan. Prior to the cutover, a “go/no-go” call will take place to once again review the cutover plan, and ensure that all stakeholders involved in the cutover are available, and all pre-cutover tasks have been completed successfully in preparation for the maintenance window. If a customer requests to cancel and reschedule a cutover, rescheduling charges may apply. Any impact to customer resource schedules as a result of a “no-go” call, will be customer responsibility.

### **DOCUMENTATION AND KNOWLEDGE TRANSFER**

- Provide documentation of the setup including a revised Sentinel design doc as well as any available vendor-created administrative and/or best practices guides.
- Provide knowledge transfer including basic functional overviews of products implemented, demonstrating the normal operations as installed in the customer’s environment.
  - Note that knowledge transfer and functional overviews are not a substitute for formal vendor product Customer Education courses available. Sentinel strongly encourages attendance at Customer Education classes to gain further insight into the product architecture and its integration.

### **PROJECT MANAGEMENT**

Sentinel will provide a project manager committed to the success of the project. The project manager will be responsible for:

- Complete success of the project
- Optimal coordination of all resources
- Guiding the client on aspects of the project they are required to perform
- Tracking and reporting of progress
- Management of agreed to budget issues
- Management of expected timelines for implementation



## SCOPE OF WORK

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- Changes to the project and communications of changes in writing using a Project Change Form
- Post installation document gathering, assembly and presentation
- Post installation project completion agreement and signature

Project management will ensure complete project success. Communication is the cornerstone of project management, and the project manager will be the central communication mechanism for all parties. This will assure all relevant parties are informed about decisions that may affect the success of their component of the solution.

## Proposal Assumptions

The following is a list of responsibilities and/or tasks that Sentinel assumes have been completed or reviewed by Wheaton SD 200 prior to the execution of the above-mentioned project. If additional responsibilities are uncovered during the project, Sentinel will make sure that Wheaton School District 200 is made aware of any issues promptly to determine resolution.

### General Proposal Assumptions

#### PRODUCT LEAD TIMES

Depending on the technologies quoted, orders may be direct or through distribution. Lead times should be expected to be 8 weeks but can exceed 8 weeks. Should expedited equipment requirements arise, there could be an additional charge to source through a warehousing distribution partner.

#### SITE READINESS AND SITE SURVEY REQUIREMENT

Every effort has been made to ensure that proper power cords and patch cables have been included to match your environment's infrastructure. The notes section of the Bill of Materials (BOM) explicitly states the quantity and type of cords quoted.

**Four options are available to ensure the accuracy of the selected items; please initial next to which method you agree to: (SELECT AND INITIAL ONLY ONE)**

**Note: In the absence of the Customer selecting one of the four options below, it is agreed that the contract will default to Option #1.**

**Initials**

**OPTION 1**

Customer waives the opportunity to complete a site/closet checklist, has reviewed the BOM and agrees to quantity, type and length of the power and patch cables provided. [Financial obligation for labor and materials for changes identified post order will be the Customer's responsibility]

\_\_\_\_\_

**OPTION 2**

Customer has provided a site/closet review checklist document and confirms the quantity, type and length of the power and patch cables quoted. [Financial obligation for labor and materials for changes identified post order will be the Customer's responsibility, unless Sentinel provided the incorrect part based upon the provided checklist]

\_\_\_\_\_

**OPTION 3**

Customer elects a "for charge" onsite survey of the facilities and closets to determine the quantity, type and length of the power and patch cables required. In addition, Sentinel will assess each closet's cooling and UPS readiness for the proposed equipment being provided. [Financial obligation for labor and materials for changes identified post order will be Sentinel's full responsibility, unless changes to the site have taken place subsequent to the site assessment]

\_\_\_\_\_

**OPTION 4**

Not applicable. This SOW does not contain any work that would be performed in or impacted by the Customer's MDF, IDF or Data Center facilities.

\_\_\_\_\_

## PROPOSAL ASSUMPTIONS

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### FIBER

It is assumed that the Customer's existing fiber will support proposed transmission speeds (i.e. 1GB, 10GB, 40GB, etc.). Customer must ensure that the fiber optic cabling is within manufacturer tolerances for distance and loss in order to support the required transport speeds. In some cases, specialized equipment, such as attenuators and mode conditioning cables, may be required to properly support these speeds. This equipment will be at the expense of the Customer.

### OPTICS (SFP, SFP+, GBIC, ETC...)

Every effort was made in the pre-sales process through white board sessions, BOM reviews and diagrams to identify any and all optics required. **ANY CHANGES IN OPTICS WILL BE HANDLED VIA A PCR UTILIZING THE CONTINGENCY ALLOCATION AS IDENTIFIED AND VALIDATED BY THE CUSTOMER AND PROJECT TEAM TO ASSURE PROPER OPTICS, CABLES AND ACCESSORIES ARE ORDERED TO MATCH THE PHYSICAL DEPLOYMENT REQUIREMENTS.** Migration items and integration items to existing equipment, if not noted, are not included nor is time for the interconnection, planning or design of same. Should any question exist as to the total number, types and use of the optics, Sentinel can set up a design review and white board session prior to the order upon request.

### POWER, RACKS AND COOLING

Like the optics, Sentinel has made a best effort to match any power requirements and answer any requests of the Customer related to equipment specifications, power cables included or other physical requirements. Any adjustments to fit in racks, connect to specific power terminal types, or secure electrician services to run a new service are beyond the fixed bid project price. Sentinel will respond to any inquiry and provide product literature. Any sizing charts provided are done so as a convenience to the Customer and DO NOT represent a commitment by Sentinel that, as sold, the equipment is ready for the Customer site. Sentinel offers Technology Area Design (TAD) consulting services should the Customer prefer a more formal and accurate solution.

### PATCH CABLES/CABLE LENGTHS

In most cases the BOM includes any note(s) on cable lengths included. Without the design validation of a formal TAD engagement, only a best effort is made to match the site requirements. Any changes to the cord lengths, connectors or other site readiness items will be in addition to the solution once the order is placed with the manufacturer(s). Many of the vendors offer the ability to select the appropriate items prior to order, but will charge for any replacements needed after the order and this offer will be extended to the Customer through the Sentinel Project Change Request (PCR) process. Unless specified, Sentinel assumes the Customer will provide all patch cables needed and can provide the product literature on any devices upon request.

### LABOR UNION REQUIREMENTS

Sentinel has NOT included any parameters for Union workers. Any requirement would require a subcontract arrangement to be determined up front and would increase the cost of deployment.

### PERMITS & ACCESS

Unless otherwise agreed, all permits, variances, access to facilities, roof access, building warranty concerns or other site specific information and procedures are the responsibility of the Customer. Sentinel can assist as needed, but will need to be informed of any requirements prior to the site survey to consider these within the validation process.

## PROPOSAL ASSUMPTIONS

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### PATCHING OF EQUIPMENT CABLING

Sentinel assumes, unless noted here, that the Customer will patch in all equipment to the cabling plant within the facility. Sentinel can perform this connection service at an additional charge with an approved PCR.

### REMOTE SUPPORT

Sentinel's service estimate assumes remote access support through IP VPN or IP PPP connection. Without this access, additional services may be incurred for optimization and tuning required pre and post installation.

### TRAVEL REQUIREMENTS AND COST

Unless specified within the proposal, all travel expenses and time are not included. Travel time shall be invoiced at pre-negotiated rates and expenses plus per diem at actual costs.

## Cisco Campus - Network Switching

### NETWORK PERFORMANCE

Sentinel engineers work to define and deploy reliable network infrastructures in regard to performance and stability however, cabling, connectors, connected systems, power, cooling, routing, and other considerations can impact network performance and general stability. Sentinel recommends a paid network assessment to evaluate the Customer's environment in order to account for variable(s) with regard to Campus Network Switching. Without a relevant prior paid assessment, a best effort will be made based on Customer input during the pre-sales process.

## Sample of Our Illinois Education Customers

Acero/Uno Charter Schools	Midlothian School District 143
Addison School District 4	Minooka High School District 111
Alsip-Hazelgreen-Oaklawn 126	Morton Grove School District 70
Argo – Summit Community	New Lenox SD 122
Arlington Heights School District 214	New Trier Township District 203
Ball-Chatham School District 5	Noble Network of Charter Schools
Brookwood School District 167	Northern Suburban Special ED District
Catalyst School Chicago	Oswego School District 308
Channahon School District 17	Palatine School District 15
Chicago Charter Schools Foundation	Peotone School District 207U
Chicago Public Schools	Plano School District 88
District 327	Prairie-Hills School District 144
Dolton School District 148	Schiller Park District 81
Elgin School District U46	School District 146
Evanston School District 202	School District 200
Frankfort School District 157C	School District 217
Glencoe School District 35	School District 50
Hillside School District 93	South Holland School District 150
Hononegah Community School District 207	St. Francis High School
Illini Bluffs Community Unit School	Steger School District 194
Intrinsic Schools	Tinley Park-Community Consolidated
Iroquois Kankakee	Township High School District 214
Kankakee School District 111	Washington School District 52
Kirby School District 140	Wheaton Community Unit
LaGrange School District 102	Woodland Community Consolidated
Lemont-Bromberek School District 113A	Worth School District 127
Manteno School District 5	

## Acceptance of RFP Terms

Sentinel Response: Sentinel Technologies Inc. has read, understands, and agrees to the terms of the RFP unless otherwise noted.

## E-Rate Project and Payment Terms

**This proposal is valid through the FY2022 E-Rate Filing Period. Upon dual execution, this proposal shall be governed by the below Agreement between the parties.**

**Agreement No. 001**

### **Project Terms**

All sections of this project, other than those sections expressly identified as Non-E-Rate or E-Rate Ineligible, are contingent on the project being accepted and approved, and a Funding Commitment Decision Letter (FCDL) with funding commitment issued by the USAC-SLD of the FCC (E-Rate) for the items and services requested. In the event that an E-Rate funding award is not made for the items or services sought in this agreement, this project and subsequent award is considered null and void.

Upon issuance of an FCDL and confirmation of intent to proceed by the Customer in the form of a duly filed Form 486 with the SLD, Sentinel will order all equipment and items approved by the SLD for non-recurring services funding. For recurring services, Sentinel will commence services upon the date of Customer filed FCC Form 486 or the start of the E-Rate funding period.

### **SLD Funded Payment Terms**

After proceeding as outlined above, Sentinel will invoice the Customer only their portion of E-Rate funding commitment (non-discounted amounts), all E-Rate ineligible costs and costs in excess of the SLD funding commitment amounts. Sentinel will invoice USAC-SLD for all SLD committed funding amounts. In the event the SLD deems any or all of the project as ineligible, the Customer is responsible for those portions of the contract as well as the Customer's matching portions.

In the event that a funding commitment from the SLD has not been received at the time the services are to commence, the Customer may elect to proceed with the services (recurring or non-recurring) in advance of a funding commitment, so far as work commences within E-Rate's fiscal year. If the Customer elects to proceed with the services in advance of receiving necessary funding commitments from the SLD, Sentinel will invoice the Customer all costs in FULL, including otherwise discounted amounts anticipated from the SLD. At such time funding commitments are received from the SLD, the Customer may then seek reimbursement for the discounted committed funding amounts from the SLD by filing a Form 472 Billed Entity Applicant Reimbursement (BEAR) form, which Sentinel will certify for work completed or in-progress.

### **Non E-Rate Payment Terms**

**Hardware/Software:** For orders over \$100K, 50% at contract execution, balance upon shipment from manufacturer

**All Invoices:** Net 30

E-RATE PROJECT AND PAYMENT TERMS

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**Fixed Price**

Fixed Fee Services will be progress billed monthly based on percentage of completion. Generally, services for all non-business impacting tasks are quoted at a standard rate for labor from 9:00 a.m. – 5:00 p.m. If Customer requires, Contractor can perform some of these services outside of normal business hours at an overtime labor rate. Notwithstanding the above, services related to migrations, cutovers, or changes to critical core infrastructure are assumed to be performed outside of business hours and are included in the services pricing provided in this contract. For the fixed charges listed, the Contractor shall furnish all of the materials and perform all of the work shown on the drawings and/or described in the specifications entitled Appendix A, as annexed hereto as it pertains to work to be performed at designated customer locations. Any alteration or deviation from the above specifications, including but not limited to any such alteration or deviation involving additional material and/or labor costs, will be executed only upon a written order for same, signed by Customer and Contractor, and if there is any charge for such alteration or deviation, the additional charge will be added to the contract price detailed above.

On this 3<sup>rd</sup> day of March, 2022, this Proposal has been respectfully submitted by Sentinel Technologies, Inc., signed by its duly authorized agent below:

CUSTOMER:  
Community Unit School District 200  
  
Signature: \_\_\_\_\_  
  
Printed Name: \_\_\_\_\_  
  
Title: \_\_\_\_\_  
  
Date: \_\_\_\_\_

CONTRACTOR:  
Sentinel Technologies, Inc.  
  
Signature: Robert Lenartowicz  
  
Printed Name: Robert Lenartowicz  
  
Title: Chief Operations Officer  
  
Date: 3/3/2022



## E-Rate Experience

Sentinel wants to help our education customers meet their networking demands and obtain the right tools to support learning in our digital world. We have extensive E-Rate experience working with educational institutions and school districts of all sizes. The systemic processes we have established over the last 20+ years incorporate lessons learned as well as industry-leading project management methodologies and a large staff of highly trained engineers. Sentinel has developed proven workflows, reporting tools, collaborative dashboards, approval structures, and documentation procedures to ensure our projects are effectively managed. We become an adjunct member of each customer's team as we collaborate together to reach a common objective.

Sentinel works closely with E-Rate consultants to initiate and monitor discussions surrounding any proposed modifications or technology additions to the Eligible Services List (ESL). These consultants also help to verify and validate ambiguities in E-Rate policies so we can guide our customers toward expedited funding commitments.

The results for E-Rate customers include increased visibility of school and/or school district stakeholders, better communication with school leaders, faster deployment schedules, and more detailed documentation in order to reduce the risk of an audit. Sentinel's project management team has dedicated roles for orchestration, financial, and communication responsibilities, as our experience has shown these investments result in highly successful projects. We are committed to ensuring our education customers have the essential resources to modernize their technology environments and achieve more through the E-Rate program.

Appendix A – Manufacture Support Documents

2021 Magic Quadrant



## Mist White Glove Deployment



### Juniper / Mist White Glove Deployment:

We are committed to success in delivering on our white glove service. Below are the details we are committing to that will ensure the success of this new product rollout at no additional cost.

#### Pre-Deployment configuration review:

- Todd Savarese to review dashboard configs & designs prior to “cut-over” date
  - Review Site Creation
  - Validate Wireless Configuration Templates are configured and applied appropriately
  - Validate appropriate RF Templates are configured and applied appropriately
  - Validate and review Switch Templates at the Org and Site level and ensure they are applied appropriately
  - Ensure NAC integration has been tested and configured
  - If centralized data plane is required, ensure APs have established tunnels.

#### Cut-over night(s)

Post install validation – ensure we meet the criteria set forth in design guidelines agreed to by CUSD 200 and Juniper/Mist.

- Validate clients can associate/authenticate throughout designed coverage area
- Validate clients are getting IP address throughout designed coverage area
- Validate clients can resolve DNS throughout designed coverage area
- Validate clients are on correct VLAN
- Validate clients can roam successfully.

#### First Day(s) of business for deployment:

- We will be online monitoring during the 1<sup>st</sup> day of business to make sure all services are functioning as expected.
- Will open support ticket to have support monitor the site remotely
  - Support is available 24x7x365
- Juniper/Mist SEs will have portal access and will be monitoring in real-time via Service Level Expectations (SLE) & MARVIS Actions.
- At the close of the first week of “Day 1”, CUSD 200 and Juniper-Mist teams will debrief, and plan any needed next steps.
- Juniper/Mist SEs will continue to monitor the Site the remainder of the week and will provide a daily status if potential problem areas exist.
- We will validate the below points:
  - Identify devices not connecting successfully
  - Detect Missing VLANs
  - Detect DHCP/DNS Anomalies

**Success Criteria for first day of business:**

- All APs connected and passing traffic on all SSIDs
- Marvis Actions not showing any actions
  - In the case we are showing an action for an item unrelated to WiFi, we must at minimum, have a plan for resolution
- Validate clients can associate/authenticate throughout designed coverage area
- Validate clients are getting IP address throughout designed coverage area
- Validate clients can resolve DNS throughout designed coverage area
- Validate clients are on correct VLAN
- Validate clients are roaming successfully

**After first day of business:**

- Host a call a week after installation as a Health Check

**Juniper-Mist Escalation contacts**

Always start by opening support ticket in Mist portal or by emailing [Support@mist.com](mailto:Support@mist.com). Upon ticket creation begin call track.

When a ticket is created the following team members will be notified: Todd Savarese, Dan De Fina, Rich Korb, and Jess Ward.

**Call Escalation Track**

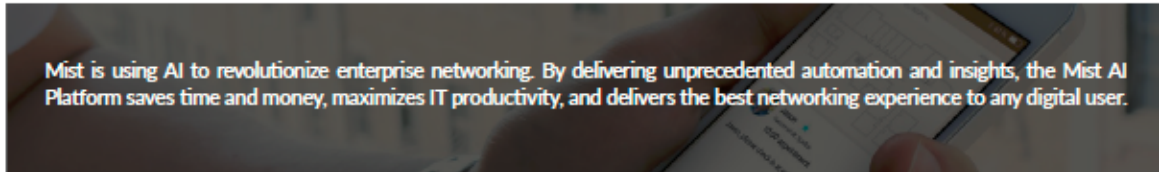
- Dan DeFina, AM 732-672-7761
- Todd Savarese, SE 630-269-6900
- Rich Korb, SEM, 240-367-6986
- Jess Ward, VP of Sales – East, 678-313-5339

Thank you for your time and consideration.

<https://www.juniper.net/us/en/dm/gartner-2021-magic-quadrant-leader.html>



## ENABLING THE AI-DRIVEN ENTERPRISE



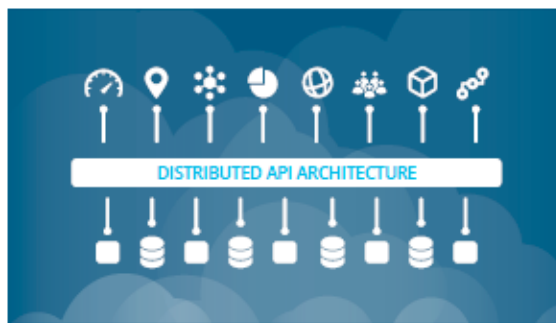
### OVERVIEW

Mist has brought true innovation to the networking space with the world's first AI-driven wired and wireless network.

The Mist AI Platform makes networking predictable, reliable and measurable with unprecedented visibility into the user experience. Time consuming manual IT tasks are replaced with AI-driven proactive automation and self-healing capabilities, lowering networking operational costs and saving substantial time and money.

Mist also brings enterprise-grade Wi-Fi, Bluetooth® LE and IoT together so businesses can increase the value of their wireless networks through personalized location services, such as wayfinding, proximity notifications, and asset location. With Mist's patented virtual BLE (vBLE) technology, no battery beacons or manual calibration are required. Mist also extends our AI operational efficiency and insights to the wired side of the business.†

All operations are managed via Mist's open and programmable microservices cloud architecture. This delivers maximum scalability and performance while also bringing DevOps agility to wired and wireless networking and location services.



### THE MIST CLOUD

#### Microservices bring unparalleled agility, scale, resiliency

Mist makes it easy to add or remove new features by leveraging a microservices cloud architecture. New enhancements and bug fixes are delivered almost weekly without network disruption. Services scale up or down elastically when they're needed, eliminating the cost and complexity of monolithic hardware. Plus, the Mist platform is inherently resilient as the failure of one service does not impact others.

#### AI engine lowers OpEx, delivers unprecedented insight

The Mist Cloud uses AI and data science to analyze large amounts of rich metadata collected from Mist Access Points and Juniper EX Series Switches† to provide actionable insight. For example:

- Supervised machine learning correlates events for rapid root cause identification.
- Time-series anomaly detection identifies negative trends and determines the magnitude of their impact.
- AI-driven Radio Resource Management (RRM) optimizes the RF settings in real-time based on changing conditions.
- Natural Language Processing (NLP) is used for making complex queries simple and fast.
- Unsupervised machine learning is used with Mist's vBLE technology to accurately locate users and devices.

#### Networking-as-a-Service

The Mist Cloud enables networking and location services to be consumed in a scalable and cost effective manner. Customers select the specific subscription services (detailed on page 2) that are best for their environment, and can easily add/remove cloud services as business requirements change. No additional hardware is required.

#### Fully programmable cloud

The Mist platform is 100% programmable, using open APIs, for full automation and seamless integration with complementary products including our AI for IT partners across LAN, WAN, security, engagement and asset location.

#### Accelerate Your Digital Transformation with Network and Business Insights

Mist's Wired/Wireless Assurance, User Engagement, or Asset Visibility service includes a base analytics capability for analyzing up to 30 days of data, simplifying the process of extracting network insights from data and analytics across your enterprise — allowing you to properly align support resources or introduce enhanced premium services. For enterprises needing deeper flexibility to extend the data timeline beyond\* 30 days or access other 3<sup>rd</sup> Party\* solutions with customizable\* reporting for better shopper and guest behavior understanding, Mist Premium Analytics Subscription services is available. Learn more about Mist Premium Analytics Subscription [here](#).

† Juniper Networks EX Series Access and Aggregation Switches

**ACCESS POINTS**

**Best Wi-Fi and Bluetooth LE performance**

In addition to delivering the best 802.11ax (Wi-Fi 6) and 802.11ac Wi-Fi range and performance, Mist APs incorporate a patented dynamic vBLE 16 element antenna array to deliver the industry’s most accurate and scalable location services.

**Data collection, analysis and enforcement**

Mist APs collect data and enforce policies in conjunction with the Mist Cloud, which is critical when doing analytics, machine learning, location services, and event correlation. For enhanced visibility, several models incorporate IoT sensors and a third radio for business process automation, constant monitoring and intelligent packet capture to speed up troubleshooting.

**Single, enterprise-grade platform for Wi-Fi, Bluetooth LE, and IoT**

For network convergence, Mist APs incorporate a port for direct, and programmable, integration to the analog and digital interfaces of Internet of Things (IoT) devices.



	AP43	AP63	AP33	AP32	AP12	AP41	AP61	AP21	BT11
Deployment	Indoor	Outdoor	Indoor	Indoor	Indoor Wall Plate	Indoor	Outdoor	Indoor	Indoor
Wi-Fi Standard	802.11ax (Wi-Fi 6) 4x4 : 4SS	802.11ax (Wi-Fi 6) 4x4 : 4SS	802.11ax (Wi-Fi 6) 5GHz: 4x4 : 4SS 2.4GHz: 2x2 : 2SS	802.11ax (Wi-Fi 6) 5GHz: 4x4 : 4SS 2.4GHz: 2x2 : 2SS	802.11ax (Wi-Fi 6) 2x2 : 2SS	802.11ax Wave 2 4x4 : 4SS	802.11ax Wave 2 4x4 : 4SS	802.11ax Wave 2 2x2 : 2SS	
Wi-Fi Tri-Radio	✓	✓	✓	✓	✓	✓	✓	-	-
Antenna Options	Internal/ External	Internal/ External	Internal	Internal/ External	Internal	Internal/ External	Internal/ External	Internal	Internal
Virtual BLE	✓	✓	✓	-	-	✓	✓	✓	✓
IoT Interface	✓	-	-	-	-	✓	-	-	-
IoT Sensors	Humidity, Pressure, Temperature	-	-	-	-	-	-	-	-
Warranty	Limited Lifetime	One Year	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	One Year	Limited Lifetime	Limited Lifetime

**JUNIPER NETWORK EX SERIES SWITCHES**

Meet your digital transformation needs with a Juniper portfolio for a full end-to-end software-defined enterprise. The Juniper

EX Series Switches address growing enterprise demands for high availability, unified communications and virtualization.

EX2300	EX2300 Multigigabit	EX3400	EX4300	EX4300 Multigigabit	EX4600	EX4650
Access	Multigig Access	Access	Access and Aggregation	Multigig Access and Aggregation	Core and Aggregation	Core and Aggregation
48 x 1GbE and 4 x 1/10GbE uplinks	16 x 1/2.5GbE and 32 x 1GbE or 6 x 1/10GbE uplinks	48 x 1GbE and 4 x 1/10GbE or 2 x 40GbE uplinks	48 x 1GbE and 4 x 10/40 GbE uplinks	48 x 1/2.5/5/10GbE and 4 x 10GbE or 2 x 40/100GbE uplinks	24 x 10GbE and 4 x 40GbE with 8 x 10GbE or 4 x 40GbE uplinks	48 x 10/25GbE and 8 x 40/100GbE uplinks
PoE/PoE+	PoE/PoE+	PoE/PoE+	PoE/PoE+	PoE/PoE+/PoE++	N/A for PoE	N/A for PoE

## ENTERPRISE NETWORKING CLOUD SERVICES

**WI-FI ASSURANCE**

Mist makes Wi-Fi predictable, reliable, and measurable. Automate operations, save time and money, and get unprecedented visibility into the Wi-Fi user experience. Secure your network with 802.1X, IPSec, RogueAP detection and more.

**Customizable Wi-Fi Service Levels** Set, monitor, and enforce Service Level Expectations (SLE) for key Wi-Fi performance metrics.

**Root Cause Identification in One Click** Proactively identify and fix the root causes of problems using Mist's Proactive Analytics and Correlation Engine (PACE).

**Guest Wi-Fi** The industry's most scalable guest access solution with options including: multiple language support, customizable branding, social login, and external portal/AAA/RADIUS integration.

**AI-Driven Radio Resource Management** Learn and better optimize radio settings to assure performance, while also instantaneously adapting to intermittent outside interference.

**Real-time User State Information** Dynamically capture packets the moment an event occurs; Rewind to see any user's state at any point in time.

**Simple Resource Assignment and QoS** With WxLAN, assign and prioritize network resources to Wi-Fi users with the click of a mouse or via pre-assigned policies.

**WIRED ASSURANCE**

Deliver better experiences for connected devices with AI-powered automation and service levels. Wired Assurance leverages rich Junos telemetry from EX Series Switches to enable simpler operations, shorter mean time to repair and improved visibility into end-user experiences of wired devices.

**Wired Service Levels** Enforce SLEs of pre-/post-connection performance metrics such as throughput, successful connects and switch health.

**Root Cause Identification in One Click** Proactively identify and fix the root causes of problems using Mist's Proactive Analytics and Correlation Engine (PACE).

**AI-Driven Switch Insight** Get switch insights down to the port level for detailed views of CPU, memory utilization, bytes transferred, traffic utilization and power draw.

**Simplified Onboarding** Claim Juniper EX Switches with one activation code for true plug-and-play capabilities. Use templates and profiles to streamline for auto-provisioning and switch configuration.

**WAN ASSURANCE**

Bring AI-driven insights for the WAN and branch to your Juniper secure SD-WAN solution and shift the focus from network and application behavior to actual user experiences.

**Improved User Experience** with insights derived from SRX Series SD-WAN edge device telemetry data. This allows WAN Assurance to compute unique "User Minutes" that indicate whether users are having a good experience.

**End to End Impact Analysis** by working with Marvis to correlate events across the LAN, WLAN and WAN for rapid fault isolation and resolution across all domains.

**Automatic Identification and Correction** enables proactive actions as a result of anomaly detection with automated workflows, with an eye towards completely self-driving networks from client to cloud.

**MARVIS VIRTUAL NETWORK ASSISTANT**

Meet Marvis – the first interactive, virtual network assistant for The Self-Driving Network™. It helps IT teams get to answers in real-time by streamlining operations and simplifying troubleshooting, while boosting user experiences.

**A Conversational Interface** Marvis uses Natural Language Processing (NLP) with Natural Language Understanding and Knowledge Graphs to understand user intent and goals. It contextualizes the inquiry and returns specific results, and can even take actions based on user feedback.

**Marvis Actions for The Self Driving Network** Marvis Actions leverages the Mist AI engine to identify the root cause of issues across the IT domains (WLAN, LAN, WAN, Security) and automatically fixes (self-driving) or recommends actions (driver-assist) with high efficacy.

**Anomaly Detection** Marvis adds anomaly detection to the SLE framework so that administrators can rapidly and proactively identify service impacting events that assure rapid determination and resolution of the root cause of issues.

**Correlate Data to Understand Scope** Marvis correlates information across a large knowledge base to determine the scope and magnitude of a problem.

**Accurate Root Cause Analysis** Bayesian Inference, a part of our data science toolbox, is used to identify causes with the highest probability of association to the problem occurring on the network.

**PREMIUM ANALYTICS**

**End-to-end Network Visibility** Get 30 days of insights through the analysis of network data from Mist across your network to optimize end-user/client experiences and identify trends to improve network resource optimization. Additional insights with other 3<sup>rd</sup> Party\* networking solutions with customized\* reporting is available.

**Orchestrated Networking and Application Performance Queries** Correlate and analyze data across Mist Cloud for optimized application delivery. Deeper insights across 3<sup>rd</sup> Party\* networking solutions and devices to generate customized queries for WAN performance from campus to branch is available.

**Simplified Network Transparency** Access to real-time line of site reporting to view network abnormalities, like rogues and honeypots. Extend viewing periods beyond 30 days\* and request customized\* reports with other 3<sup>rd</sup> Party\* networking solutions.

*Highlighted features listed on this page are a subset for each service; refer to services datasheet(s) for complete set of functions.*

*\*Mist Premium Analytics service subscription is needed*



BLUETOOTH LE CLOUD SERVICES



**USER ENGAGEMENT**

Mist flipped the indoor location model on its head. With patented virtual Bluetooth LE (vBLE), indoor location is finally easy to deploy and scale, with unprecedented accuracy and agility.

**Real-time Wayfinding** Help employees, guests, and customers get to where they need to be with turn-by-turn directions. Enable wayfinding with accuracy of up to 1 meter (3.3 feet) with sub-second latency.

**Real-time Proximity Notification and Alerts** Greet patients, clients or customers as they arrive onsite. Create push notifications anywhere with unlimited virtual beacons. Deliver contextually relevant messages anywhere for a personalized mobile experience.

**SDK for Mobile App Integration** Mist offers a mobile SDK that enables you to integrate your mobile application wayfinding and notifications with Mist's virtual Bluetooth LE infrastructure.



**ASSET VISIBILITY**

With Mist's patented virtual Bluetooth LE technology, the same infrastructure for engaging with mobile users can be used for asset visibility.

**Get Full Visibility Into People and Things Using Standards-based Bluetooth LE Services** Easily locate key resources, like nurses, security guards, and sales associates. Track IV pumps, forklifts, and high value assets with Bluetooth LE tags.

**Asset Identity** Assign names to asset tags or BLE-enabled mobile/IoT devices to locate these assets on your venue map or integrate location with business applications.

**Detailed Analytics** Monitor visits and dwell times, with detailed drill down into zone traffic patterns and congestion points.

**Asset Location and Analytics Powered by APIs** A complete and open set of APIs enable you to integrate your asset tags as well as asset location and analytics applications with the Mist virtual Bluetooth LE infrastructure.



**PREMIUM ANALYTICS**

**Customer segmentation & reporting based on visitor telemetry** Review your customer/workforce traffic visits for resource planning or customized notification services. Out-of-the-box reporting and dashboards for 30 days, with extended option\* to 12 months or longer.

**Customized\* dwell and 3<sup>rd</sup> Party reporting** for traffic and trend analysis. Generate customized\* visitor segmentation with motion paths (traffic flows between departments) dynamically or historically for cross-sell service delivery across brands and product affiliates.

**Correlate customer-guest traffic and trend analysis** Identify and segment various customer/guest types across your product portfolio. Expand data correlation beyond\* 30 days for planning of existing and new resources and services.

\*Mist Premium Analytics service subscription is needed.

## Appendix B – Sentinel Technologies Overview

For more than 39 years, Sentinel Technologies has been recognized as a premier business technology services provider dedicated to delivering the highest quality customer service and support. Even as our services have spanned generations of technology, Sentinel has stayed at the forefront of IT developments and maintained a singular focus on providing practical and innovative solutions. With single-source accountability, Sentinel processes and teams can efficiently address a range of IT needs - from end-to-end solutions to targeted applications. Our proven success has allowed us to expand from our original charter of providing technology maintenance services to our current standing as one of the leading IT services and solutions providers in the U.S.

*Cisco Gold Partner*

*Three Cisco Masters Certifications*

*Cisco 2015 SLED Partner of the Year*

*Cisco Worldwide Partner of the Year 2003*

*Cisco IP Communications Partner of the Year Multiple Years*

To see more, go to [Cisco.com](http://Cisco.com), search for partner locator, enter Sentinel Technologies, Inc.



## SSAE 16 SOC 2, Type II Attestation

Standing at the apex of Sentinel’s myriad awards, honors and certifications is its SSAE 16 Service Organization Control (SOC) 2, Type II Attestation which has been undertaken annually by the nationally-renowned auditing firm Plante Moran, PLLC for the past three years. The SOC 2, Type II attestation is the highest and most rigorous in the SSAE 16 portfolio of audits, evaluating Controls and Processes that encompass the Five Trust Service Principles of Security, Availability, Processing Integrity, Confidentiality and Privacy.

Why should this matter to you? The SSAE 16 attestation provides independent validation and assurance that Sentinel is in compliance with best practices regarding items of critical importance to you -- security, confidentiality, data protection, project management and IT strategic solutions, to name a few. If you are seeking consulting or services support for your IT environment, the SOC 2, Type II attestation should be one of the most important factors in your evaluation.



The SSAE 16 Attestation is a standard that was created by the American Institute of Certified Public Accountants (AICPA) in 2010 to replace the SAS 70 certification process, and expand reporting to the effectiveness of a service organization’s controls relating to operations and compliance.

# NEVER FOLLOW

At Sentinel we've always taken the lead. Since 1982, Sentinel Technologies has been recognized as a premier business technology services provider dedicated to delivering the highest quality IT solutions, consulting, customer service and support. Even as our services have spanned generations of technology, Sentinel has stayed at the forefront of IT developments and maintained a singular focus on providing practical and innovative solutions. With single-source accountability, Sentinel processes and teams can efficiently address a range of IT needs – from communications, to data center, to cloud and managed services. Our proven success has allowed us to expand from our original charter of providing technology maintenance services to our current standing as one of the leading IT services and solutions provider in the U.S.

By aligning with many of today's global technology leaders including Cisco, Microsoft, DellEMC, NetApp and VMware, Sentinel solutions achieve tangible results.

When it comes to achieving a tangible ROI and sustainable performance from your IT environment, Sentinel takes the lead!

## APPENDIX B – SENTINEL TECHNOLOGIES OVERVIEW

Headquartered in Downers Grove IL, Sentinel Technologies has independently managed offices in nine locations: Downers Grove IL, Chicago IL, Springfield IL, Milwaukee WI, Phoenix AZ, Ann Arbor MI, Lansing MI, Grand Rapids MI and Denver CO, allowing us to service our customers both nationally and internationally.



OUR CAPABILITIES

**THE COMPLETE PACKAGE**

Sentinel provides our customers with a comprehensive solution: vision, design, product, implementation, documentation, training and support.



COMPREHENSIVE SOLUTIONS

**ANY INDUSTRY**

Sentinel's services span the range of business verticals in mid-market, upper mid-market and enterprise level organizations. Companies in the Healthcare, Financial / Banking, Government, Education, Legal, Utilities, and Manufacturing verticals have taken advantage of Sentinel's ability to take either full responsibility or act as a supplemental contributor to our customer's business technology initiatives.



DIVERSE INDUSTRIES

**THE SENTINEL DIFFERENCE**

Sentinel applies an extraordinary breadth of technical solution expertise to design, sell, deploy and support our customer's business technology needs. Our unwavering commitment to thought leadership and customer satisfaction maximize both the value of technology investments and its impact to the business.

**500**  
EMPLOYEES

HIGHLY-TRAINED

# SENTINEL CORE SOLUTIONS

Sentinel understands your business is in constant motion. We take the initiative to make solutions happen that drive your business forward.

To jumpstart solution development, we perform analyses ranging from a rapidly-delivered “technical review” focused in a specific technology to an in-depth audit and analysis of IT processes, continuity plans, and compliance.

During solution development, our LMC methodology – Location/Management/Consumption – uncovers the preferred solution Location (customer site or colocation), Management (customer or Sentinel) and the financial Consumption model (CAPEX/OPEX).

If you need assistance evaluating your LMC, Sentinel Advisory Services determine how to best balance your computing workloads – whether cloud, private cloud or hybrid cloud – based on business needs.

Once the direction is set, highly skilled Sentinel teams provide technology solutions and products that keep you always engaged and always connected:

**COMMUNICATION | DATA CENTER  
CLOUD & MANAGED SERVICES | SECURITY SELECT**

SECURITYSELECT™

COMMUNICATION | DATA CENTER | CLOUD & MANAGED SERVICES | SECURITYSELECT™



**ALWAYS ENGAGED** When your needs require the design, sale and implementation of a technology solution, Sentinel project teams are always up to the task. We combine the strength of a seasoned technical design team with highly-trained field engineers and a world-class Project Management Organization. The Sentinel team remains “always engaged” throughout the life of the project to ensure the highest quality solution is delivered on time and on budget.

- Unified Communications
- Mobility/Wireless
- Conferencing and Collaboration
- Unified Contact Center
- Software Defined Networking
- Hyper Conversion
- Private and Hybrid Cloud
- Software Defined Storage
- Data Center
- Backup, Recovery and Business Continuity
- Cyber Security – Network/Email/Web/Physical
- Data Center Design





SECURITYSELECT™

COMMUNICATION | DATA CENTER | CLOUD & MANAGED SERVICES | SECURITYSELECT™



**ALWAYS CONNECTED** When customers seek to maximize the lifespan of their current systems or desire a more efficient model to deliver IT, Sentinel's support teams and cloud services make certain you are "always connected". Maximizing the availability of current systems through consulting, managed services, maintenance, monitoring and staffing has always been a cornerstone of our business. Sentinel's CloudSelect® offerings are built on a high-availability platform that delivers cloud or hybrid cloud computing solutions through a customized, cost effective model.

- Sentinel CloudSelect® – Compute, Storage, Backup/DR, Voice, Wireless, Colocation
- Managed Services
- ITIL Business, Continuity and Regularity Compliance
- Supplemental Staffing
- Assessment Advisory Services
- Maintenance and Support Contracts
- Sentinel High Availability Network Support (HANS™)
- SECaas and SOC



SENTINEL CORE PRODUCTS

Sentinel Core Products

**SENTINEL MANAGED SERVICES / ASSESSMENT ADVISORY SERVICES:**

- |   |                       |
|---|-----------------------|
| • Sentinel Managed Services                 | • Staff Augmentation  |
| • Assessment Services and Advisory Services | • IT Managed Services |
| • Cloud                                     | • Maintenance Support |
| • Consulting                                | • HANS™               |

**CLOUDSELECT®:**

- |                             |                          |
|-----------------------------|--------------------------|
| • Cloud Advisory            | • As a Service Offerings |
| • Collection Hosting        | • Disaster Recovery      |
| • Computer and Storage      | • Backup Collaboration   |
| • Network and Collaboration | • Wireless               |
| • Desktop                   |                          |



**NETWORK AND COLLABORATION:**

- |   |                      |
|---|----------------------|
| • CloudSelect®                            | • Microsoft          |
| • Voice/Contact Center/Full Collaboration | • Skype for Business |
| • Cisco UC                                |                      |



**DATA CENTER:**

- |                    |                            |
|--------------------|----------------------------|
| • Hybrid Cloud     | • Converged Infrastructure |
| • Backup and DRaaS | • Storage                  |
| • DC Design        |                            |



**SECURITYSELECT™:**

- |                             |               |
|-----------------------------|---------------|
| • Assessment and Prevention | • Application |
| • Identify Access           | • Network     |
| • Perimeter                 | • End Point   |
| • Physical                  |               |



OUR VALUED PARTNERS

Sentinel recognizes that the quality of our solution partners directly affects the quality and value of the solutions we deliver to our customers. Our strategy is to partner with the best in the industry and obtain the highest level of certification available from all our key partners which, in turn, enables us to buy at the best price available. This ensures that we not only have the technical and business expertise to deliver on our promise, but we can do so in the most cost-effective manner possible.

Sentinel is proud to maintain the following organizations as our strategic business partners:

Key Partner Certification Levels



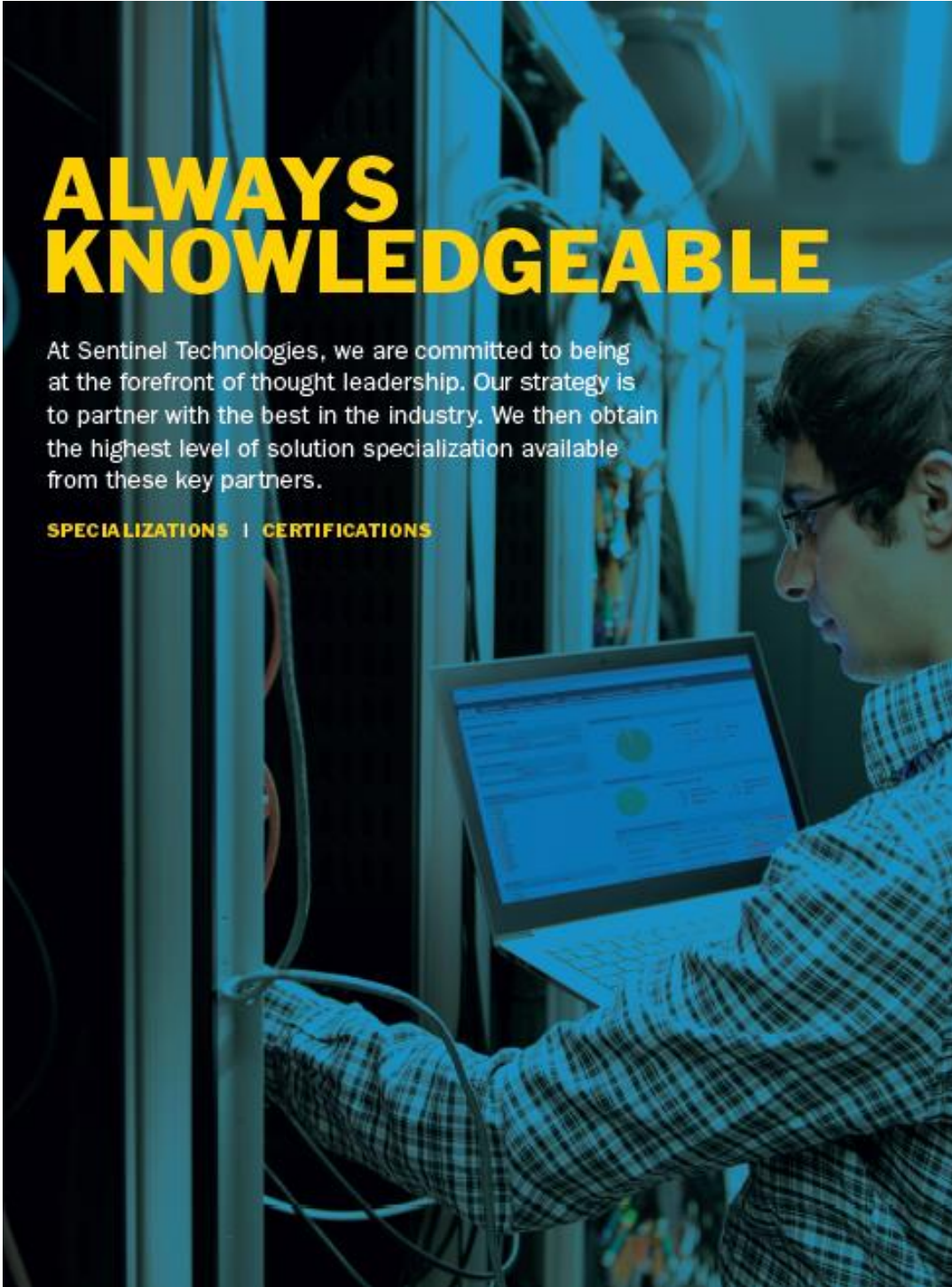
Valued Partners



# ALWAYS KNOWLEDGEABLE

At Sentinel Technologies, we are committed to being at the forefront of thought leadership. Our strategy is to partner with the best in the industry. We then obtain the highest level of solution specialization available from these key partners.

**SPECIALIZATIONS | CERTIFICATIONS**



OUR QUALIFICATIONS

Company Specialization / Certifications

The following Manufacturer Technology Certifications recognize Sentinel's expertise within each of our manufacturer partner's technologies:



**SPECIALIST DESIGNATION FROM CISCO IN:**

- Cisco Powered Cloud Services
- Cisco Powered Managed Services
- Advanced Routing & Switching
- Advanced Data Center Architecture
- Advanced Network
- Advanced Content Security
- Advanced Unified Fabric
- Advanced Wireless LAN
- TelePresence Video Advanced Plus
- Cisco Partner Support Services

**ADVANCED TECHNOLOGY PARTNER (ATP) FROM CISCO IN THE FOLLOWING AREAS:**

- Application Centric Infrastructure (ACI)
- Identity Services Engine (ISE)
- Cloud Partner – EMC, NetApp, Microsoft and VMware
- Unified Contact Center Enterprise
- Customer Voice Portal
- Advanced Internet of Things – Safety & Security Specialized Partner
- VBlock per client website



**MICROSOFT AUTHORIZATIONS:**

- Gold Management and Virtualization
- Gold Communications
- Silver Midmarket Solution Provider
- Silver Server Platform
- Silver Messaging
- Silver Data Center



**EMC AUTHORIZATIONS:**

- Premier Partner Level
- Velocity Advantage Partner
- Authorized Service Partner
- Consolidate Specialty
- BRS Specialty
- VCE Design & Installation



**VMWARE AUTHORIZATIONS:**

- Solution Provider Enterprise Partner
- Infrastructure Virtualization
- Business Continuity
- Desktop Virtualization



**NETAPP AUTHORIZATIONS:**

- Gold Level Partner
- Virtualization Specialized
- FlexPod Specialized/Premium Partner
- NetApp Support Services Certified
- Silver Data Center



**SSAE16 AUDITOR CERTIFIED**

OUR QUALIFICATIONS

Individual Technical Certifications

Sentinel makes substantial investments in keeping the training of our technical, sales, and design team members up to date to ensure we have the technical and business expertise to deliver on our promise.

Sentinel possesses over 2,400 technical certifications from our manufacturer partners. A sampling is below.

NETWORK AND DATA CENTER

351 CISCO CERTIFICATIONS

- CCIE – 41, CCDP – 9, CCDA – 17, CCNA – 113, CCNP – 38, CCSP – 2
- 100+ Unified Communications, Sales, and Design Certifications



35 EMC CERTIFICATIONS

- ASN Partner – certified for complete installation and implementation of the entire EMC portfolio
- Storage / Cloud / Big Data / Data Protection / Security / Content Management / Converged Infrastructure



OTHER PROFESSIONAL CERTIFICATIONS



126 Certifications



30 Certifications



35 Certifications



Certified Professional

**2,400+**  
INDIVIDUAL  
CERTIFICATIONS

OUR QUALIFICATIONS

**MAINTENANCE AND REPAIR**

- **HP** - 698 certifications (workstations, notebooks, server, printer etc)
- **DELL** - 229 certifications (server, storage, notebook etc)
- **LENOVO** - 86 certifications (desktop/laptop)
- **LEXMARK** - 34+ certifications (printers)
- **PC SUPPORT** - 163 Certifications (workstations, notebooks, server, printer etc)



**CUSTOMER SATISFACTION QUALIFICATIONS**

- Recipient of Advocate Healthcare Corporate Partner Award
- Recipient of AM Castle Supplier of the Year Award
- Recipient of Illinois Auto Auctions Inc. Outstanding Performance Award
- Recipient of hundreds of letters from customers recognizing outstanding contribution and performance

**TECHNOLOGY PARTNER AWARDS**

- Recipient of Cisco Customer Satisfaction Excellence Award for seven straight years
- Best year over year performance in Central Operations District
- Cisco Southwest Territory Partner of the Year for three consecutive years
- Best year over year performance U.S. Regional VAR
- Southwest Territory Enterprise Networks Cisco Partner of the Year
- Best of AVVID Show Award in Customer Satisfaction for Sentinel's IQ for Education application suite for Cisco IP phones
- Awarded Cisco "Global IP Communications Partner of the Year"
- Southwest Territory Security Cisco Partner of the Year
- Awarded Cisco "Great-Lakes-Region – Partner of the Year"
- Southwest Territory Data Center Cisco Partner of the Year
- Awarded Cisco "Central Region IP Communications – Top Partner"
- Awarded Cisco "Central Region Partner Summit – Partner of the Year"
- Awarded Cisco Wireless "Excellence in Partnership"
- Six time HP Service Excellence Award Winner
- Excellence in Cisco Collaboration Architecture Award - Cisco U.S./Canada Partner Summit
- EMC Quality Service Award
- Outstanding Customer Satisfaction Award – Cisco U.S./Canada Partner Summit
- Cisco SLED Partner of the Year

EMPLOYEE SATISFACTION QUALIFICATIONS



Since the inception of Sentinel in 1982, the Company has abided by a simple philosophy – “happy and motivated employees equal happy customers”. To that end, Sentinel has been vigilant in creating a work environment that encourages creativity, fosters growth, and rewards success.

Sentinel has received independent recognition for their ability to create an outstanding work environment and throughout the United States. The Company has also received hundreds of letters of recommendation from national and international customers for the outstanding support delivered by the Sentinel team.



Sentinel is proud to have been recognized as a “Best Place to Work” in the U.S. Midwest and Southwest regions. In the Midwest, Sentinel has been named a Top 100 Workplace by the Chicago Tribune for four consecutive years and also recently received recognition as a “Top 100 Workplace” for Arizona. In both cases, Sentinel was selected based on employee feedback compared to other companies in the region. Sentinel has also been recognized as a “Best Place to Work” by Crain’s Chicago Business.





OUR METHODOLOGY

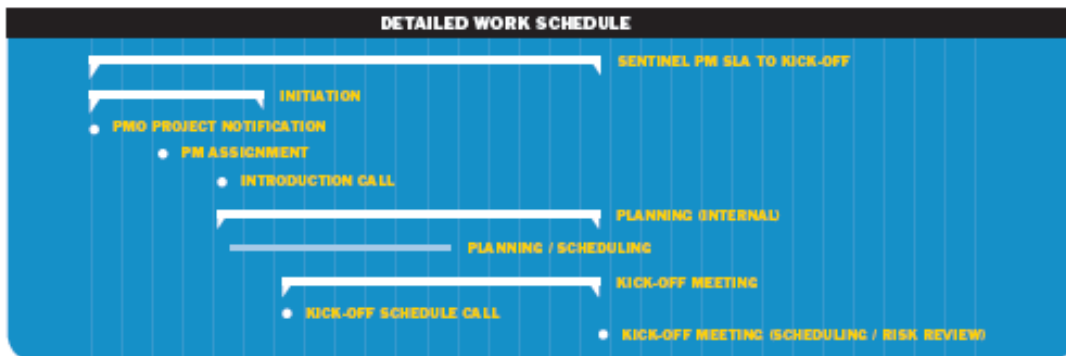
**ALWAYS EFFICIENT** To ensure high quality results are produced on schedule, we have embraced professional project management as the cornerstone of every assignment. It's a unique blend of strategic and tactical monitoring combined with control techniques to realize the "how" of the work we perform. These "Guides to Assembly" lead participants through communication channels and work assignments to achieve task sequence, manage risk, and avoid re-work.

Sentinel's Enterprise Project Management Organization (EPMO) has a large core of PMP certified Project Managers who work with our customer and the assigned Sentinel technical project team to ensure we deliver on our promise. Our PM's have the professional certification and a strong technical background necessary to provide the management and guidance required to keep projects on time and on budget. Sentinel's EPMO utilizes tools such as Microsoft SharePoint Portal and Organizational Project Management Maturity Model (OPM3) along with basic blocking and tackling around issues like defects, root cause analysis, and risk mitigation to deliver optimum results.

For projects requiring project management (typically 80+ hours of technical services), Sentinel will adhere to the following guidelines:<sup>\*</sup>

<p><b>1 INTRODUCTION CALL</b></p> <p>Within two business days of PMO notification, a Sentinel Project Manager will contact you for an introduction and to answer any questions you might have.</p>	<p><b>2 SCHEDULE EXTERNAL KICK-OFF</b></p> <p>Within three business days of the Introduction Call, the Project Manager will call again to arrange a time and date to set up an initial "Customer Kick-Off" meeting with you and your Team.</p>	<p><b>3 KICK-OFF MEETING (CUSTOMER SITE)</b></p> <p>Ten business days from the Introduction Call, the Customer Kick-Off will be held at the customer location.</p>
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As a result of this session, a detailed final work schedule (*MS Project*) will be created and used to track and control the project. Once completed and resources are scheduled, the Design phase can commence.



*\* Depending on the size and complexity of the project, planning sessions and the subsequent creation of schedules and other administrative project management artifacts such as risk plans, communications plans, and resource scheduling, can extend out from the intervals shown above. Project Management process may be customized based on factors such as project size, urgency or complexity.*