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Solutions Brief

Deploying Cloud-managed Gateways, Simply and Securely

Executive Summary

More than one trillion edge devices are projected to be deployed by 2035 and organizations are now facing the challenges of how to manage and utilize the ever-increasing amounts of data generated by these devices. As a result, most industries are undergoing a shift in how they think about data management at the edge. This is further underscored by Gartner analysts who estimate that by 2022, more than half of all enterprise data will be processed outside of the datacenter.

Enterprises understand that more compute technology will need to be deployed closer to the edge data sources to reduce latency in processing this remote data. This shift to edge computing will heavily rely on the deployment of devices such as IoT gateways and industrial PCs. The scale and complexity of this rapidly expanding edge ecosystem calls for innovative management tools for deploying and maintaining these systems.

Figure 1.   *Supermicro's edge computing devices teamed with Zededa's Edge Services Platform allow IT to simply and securely remote-manage all edge computing networks*

Challenges

- Large number of different devices with wide geographical distribution

- Onboarding and ongoing management of remote devices

- Hardware security in a perimeter-less world

- Disparate types of edge hardware result in management silos

- Latency complicates real time information/response

Benefits of Supermicro Managed Solutions

- Central visibility and management over all edge hardware

- Hardware integrity and security ensured with zero-trust model

- Zero-touch device provisioning

- Configure and manage applications at scale

- Agility and scalability with 100% cloud-based model

The Challenges

To successfully build and run a reliable and efficient edge computing infrastructure, organizations need solutions to several new problems:

- Deploying remote devices at any scale normally requires skilled technical resources already onsite or service contracts with regional organizations that can put support personnel where needed and for the duration of the installation.

- Once deployed and properly configured, an organization must develop the means to manage diverse devices distributed across a wide geographical area. This requires either a robust remote management plan or dedicated onsite personnel to ensure full and continued functionality of the devices.

- Deployment plans must take into consideration not only the functionality of the devices as they are deployed today but also how to manage upgrades and enhancements into the future.

- Devices that will likely exist outside of traditional perimeter-based security must adopt technologies such as the zero-trust model in the perimeter-less environment.

- Processing data at remote locations requires multiple means of connectivity to reduce latency and provide a fail-safe for potential service interruptions.

The Solution

Cloud-Managed Gateways Streamline Deployment

Organizations can streamline and simplify the deployment of edge hardware across their entire landscape with Supermicro's cloud-managed gateways and edge computing devices. Our high-performance, rugged devices enable organizations to move processing power out of the datacenter and closer to their edge. New devices arrive equipped with the Zededa's Edge Services Platform (ESP) installed, allowing IT to remotely manage all initial and ongoing hardware orchestration.

Zededa's Edge Services Platform offers 100% cloud-managed automation, visibility, and protection of edge applications and the hardware it runs on. It provides an automated, hardware agnostic, and secure operating model for mass-deployed edge devices and applications—eliminating manual configuration processes, requirements for on-site expertise, and any need for manual updates of software.

To get started, simply plug the new device into the network, power it on, and log into the Edge Services Platform console from any web browser. Technical expertise is not required at the deployment site.

Powerful Tools for Remote Management

Once devices are successfully installed in their remote locations, they can easily be managed from any browser through the cloud interface. The management tools offer

complete visibility into device and application health, while also enabling automated and secure over-the-air software updates to any one device or to millions of devices at the same time. Built-in, one-click disaster recovery of applications provides unprecedented control, visibility, and service reliability for deployments of any size.

Industrial App Store Simplifies Future Service Deployment

Industrial computing has witnessed a technological leap with the emergence of IoT and the ubiquitous connectivity of edge computing, making it possible for devices with long, multi-year lifecycles to act as a platform for deploying new, revenue enhancing applications. Supermicro edge devices with ZEDEDA's Edge Services Platform provide a secure method of deploying new industrial applications on existing equipment. Adding new service capabilities is now as simple as adding an app to your smartphone.

Your Managed Devices Are Safe and Secure

Each device is equipped with TPM/TEE, ensuring hardware root of trust as the starting point of your security measures. All devices are factory configured with a trusted root CA certificate and there are no usernames or passwords within the device software to be discovered by anyone with malicious intent.
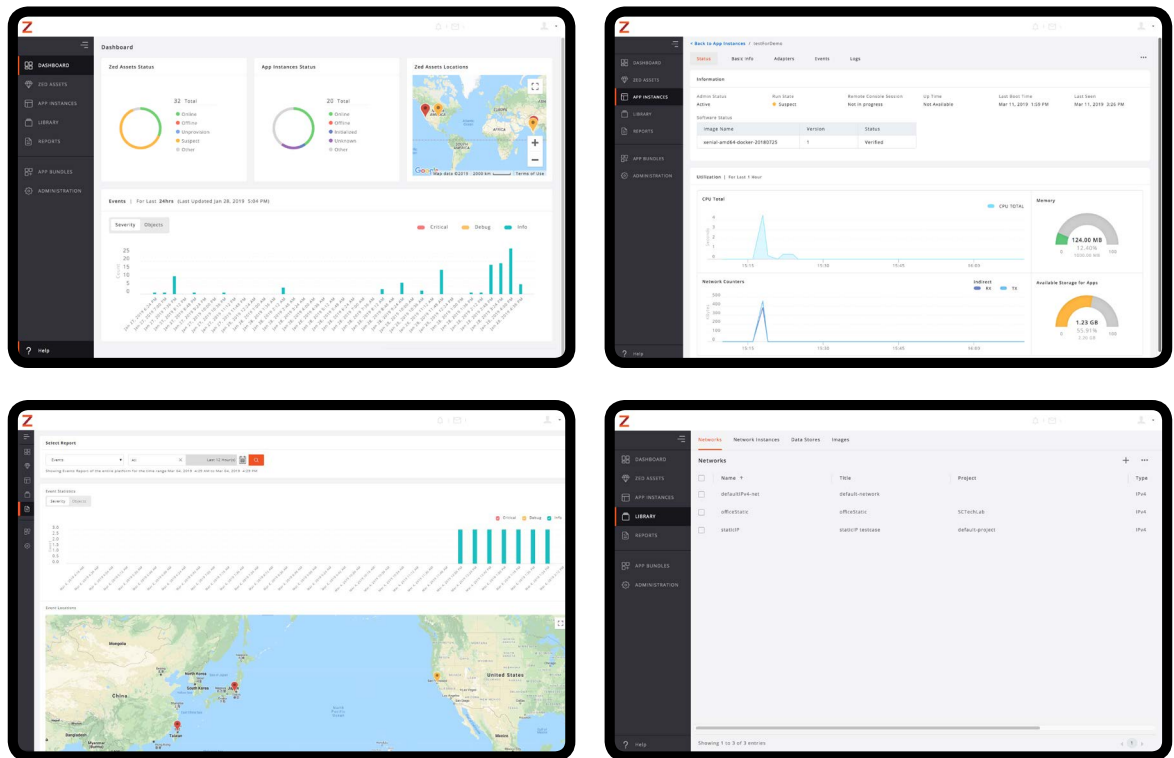

Figure 2. *Zededa software interface controls provide one-click deployment of edge services and applications across your entire landscape. Application configuration and updates are all managed through the central control pane.*

SUPERMICRO GATEWAYS AND SERVERS AVAILABLE AS MANAGED SOLUTIONS

| IoT Gateways	SYS-E50-9AP-WIFI	SYS-E100-9S-E	SYS-E300-8D	SYS-5018D-FN8T
Processor/Cache				
CPU	Intel® Atom® processor E3940 Single socket FCBGA 1296 9.5W, 4C	7th Generation Intel® Core i5-7300U Processor Single Socket FCBGA 1356 System-on-Chip CPU TDP support 15W	Intel® processor D-1518, 2.2GHz; CPU TDP support 35W FCBGA 1667: 4 Cores, 8 Threads / 6MB	Intel® Xeon® processor D-1518 2.2GHz; CPU TDP support 35W FCBGA 1667: 4 Cores, 8 Threads / 6MB
System Memory				
Memory Capacity	Up to 8GB Unbuffered non-ECC SO-DIMM DDR3L-1866MHz, in 1 DIMM socket	Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots	4x DDR4 DIMM sockets Supports up to 128GB DDR4 ECC RDIMM Supports up to 64GB DDR4 ECC/non-ECC UDIMM	4x DDR4 DIMM sockets Supports up to 128GB DDR4 ECC RDIMM Supports up to 64GB DDR4 ECC/non-ECC UDIMM
Memory Type	DDR3L up to 1866MHz	DDR4 up to 2133MHz	2133/1866/1600MHz ECC DR4 ECC RDIMM and ECC/Non-ECC UDIMM	2133/1866/1600MHz ECC DDR4 ECC RDIMM and ECC/Non-ECC UDIMM
DIMM Sizes	8GB, 4GB, 2GB	16GB, 8GB, 4GB	32GB, 16GB, 8GB, 4GB	32GB, 16GB, 8GB, 4GB
Memory Voltage	1.35 V	1.2 V	1.2 V	1.2 V
On-board Devices				
Network Controllers	Dual LAN with Intel® Ethernet Controller I210-IT	Single LAN with Intel® I210IT Single LAN with Intel® PHY I219LM	Dual 10G SFP+ from D-1500 SoC Quad 1GbE with Intel I350-AM4 Dual 1GbE with Intel I210	Dual 10G SFP+ from D-1500 SoC Quad 1GbE with Intel® I350-AM4 Dual 1GbE with Intel® I210
SATA	SATA3.0	SATA3 (6Gbps)	SoC controller for SATA3 (6Gbps)	SoC controller for SATA3 (6Gbps)
Input/Output				
LAN	2x RJ45 Gigabit Ethernet LAN	2x RJ45 Gigabit Ethernet LAN	2x 10G SFP+ LAN 6x 1GbE LAN 1x Dedicated IPMI LAN	2x 10G SFP+ 6x RJ45 Gigabit Ethernet LAN 1x RJ45 Dedicated IPM LAN
USB	2x USB 3.0 2x USB 2.0	1x USB 3.1 (Type C) 2x USB 3.0 4x USB 2.0	2x USB 3.0	2x USB 3.0
Storage Module	1x 2.5" 7mm SATA SSD 1x M.2 B-Key 2242/3042 for SATA SSD	1x M.2 B-Key 2280 (2242 with standoff)	1x 2.5" fixed drive bay with bracket (when AOC area is not occupied)	1x 3.5" or 4x 2.5" drive bays with bracket
Com Port	2x COM (RS-232/422/485)	1x DP (Display Port) 1x HDMI	1x COM (1 header)	1x COM (1 header)
Video	2x HDMI	1x DP (Display Port) 1x HDMI	1x VGA	1x VGA
Audio	ALC 888S HD Audio	1x HD Audio header (Mic-in/Line-Out) (option)	N/A	N/A
TPM	1x TPM 2.0 onboard	1x TPM 2.0 onboard	TPM 2.0 header	TPM 2.0 header
Others	Dual Band Wireless and Bluetooth 4.2	1x DIO via DB9	1x SuperDOM (Disk on Module) power connector	1x SATA DOM (Disk on Module) power connector
Software				
ZEDEDA	SFT-ZE-ZEDEDGE1EAP1YR	SFT-ZE-ZEDEDGE1EAP1YR	SFT-ZE-ZEDEDGE1EAP1YR	SFT-ZE-ZEDEDGE1EAP1YR
Operating Environment				
Operating Temperature	0°C to 50°C (32°F to 122°F) -20°C to 50°C (-4°F to 122°F) Without Wifi	0°C ~ 50°C (32°F ~ 122°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)

Application Use Cases

Fully Automated Smart Factory

- Easily integrate and share ICS information along with new sensor data with IT/OT

- Secure App-to-App communication via overlay network

- Real-time data-enabling collaboration

- Central control, automation and autonomous edge operations

- Locally distributed
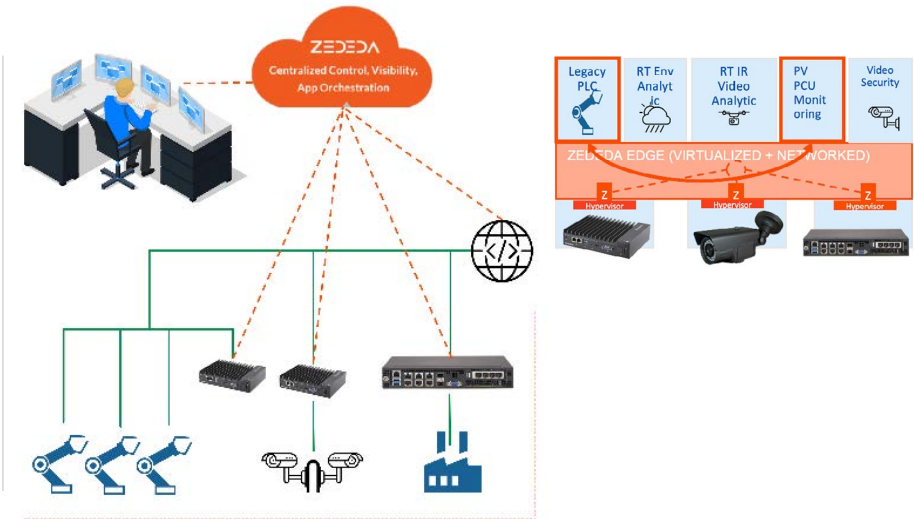
Smart Workspaces— Personalization Gateway

- Identity-based experience regardless of location

- Instant access control and authentication

- Facial recognition authenticates identity

- Corporate security policies automatically deployed on data

- Reduce remote office expenses
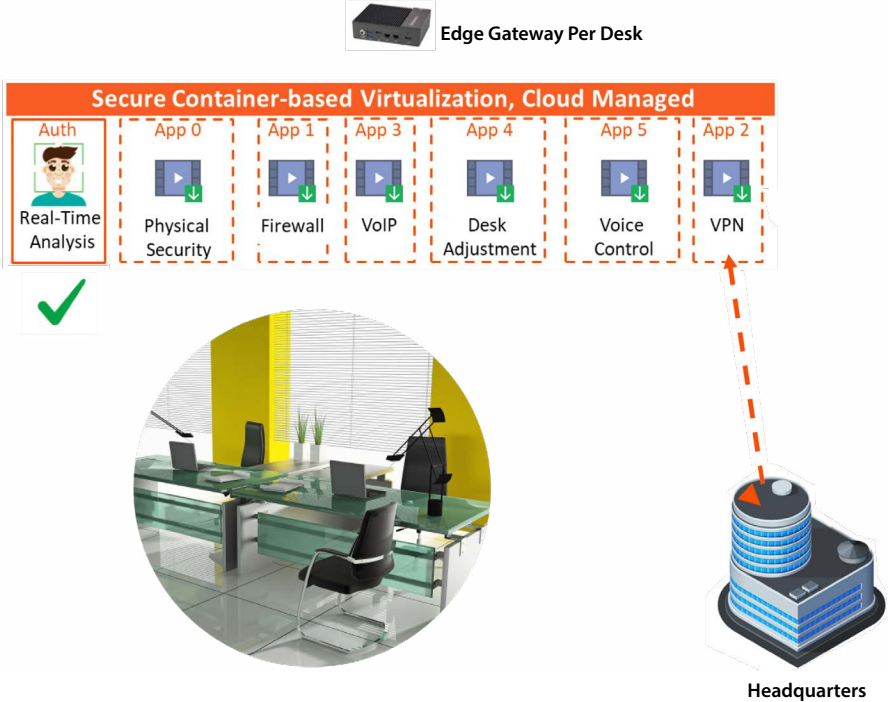
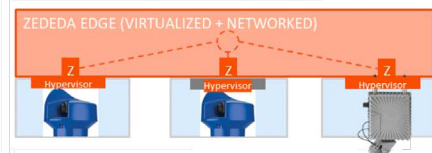## Application Use Cases *(continued)*

Smart City Application Platform

- Hardware agnostic

- Secure app-to-app communication without delay

- Local application logic, real-time action

- Locally survivable of services

- Highly distributed

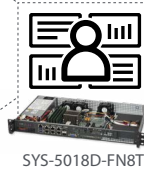**Per Segment Gateway**
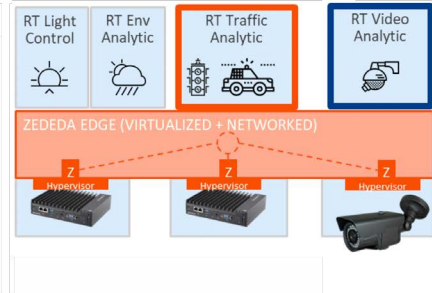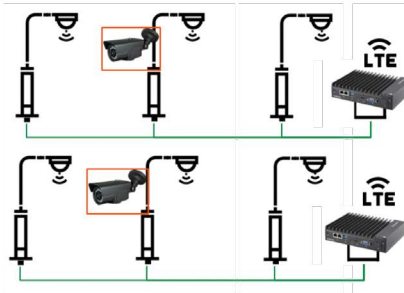
Per Street Lamp Gateway

Fully Automated Solar Farm (Local Point of Presence)

- Hardware agnostic

- Secure app-to-app communication via overlay network

- Local application logic, real-time action

- Locally survivable of services for extremely remote locations
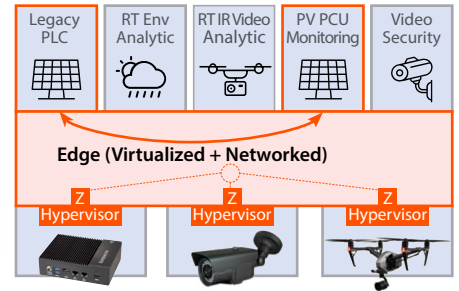
- Locally distributed
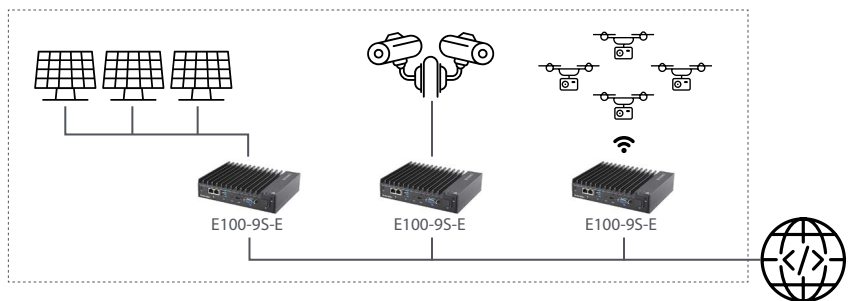
Topaz Solar Park (9M Modules)

Operations Center

SYS-5018D-FN8T

Hindupar Solar Park (195 Acres)

POP @ Local to Solar Farm

E100-9S-E   E100-9S-E   E100-9S-E

For More Information

- Optimized SuperServer® Solutions
  **https://www.supermicro.com/
  products/embedded/embedded_
  server.cfm**

- Internet of Things Gateway
  Solutions
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- Embedded / IoT Solutions
  **https://www.supermicro.com/
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- SuperServer E50-9AP-WIFI
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  E50-9AP-Wifi.cfm**

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- SuperServer E300-8D
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  products/system/Mini-ITX/SYS-
  E300-8D.cfm**

- SuperServer 5018D-FN8T
  **https://www.supermicro.com/
  products/system/1U/5018/SYS-
  5018D-FN8T.cfm**

Key Benefits of Supermicro Managed Edge Solutions Powered by Zededa

- **Single pane of glass across all edge hardware:** Deploy, manage and monitor all hardware through the same console—any hardware, any software, at any time.

- **Zero-touch provisioning**: Connect the wired or wireless Ethernet, power on the device, and it will automatically connect to the cloud and receive the relevant configuration details. Device initialization requires no IT expertise or pre-installation configuration.

- **Superior security designed for the edge:** Zero-trust model ensures device integrity in environments where hardware, software, and users cannot always be verified or trusted. Comprehensive security capabilities provide the same comparably high level of control and scrutiny required in traditional datacenters.

- **Services ecosystem:** One-click deployment of edge services and applications across your entire landscape. Application configuration and updates are all managed through the central control pane, streamlining common tasks and reducing administrative overhead.

- **100% cloud-based delivery:** All the benefits of the cloud, right at the edge. On-demand scale and Anything-as-a-Service delivery make it easy to enable new functionality as needed, and agile development provides continuous and predictable improvements.

Summary

Deploying managed and secure Gateways has never been easier. With Supermicro Edge Devices and Zededa's Edge Services Platform, businesses can move their deployment plans forward with confidence, knowing that their devices are secure and the path to remote management of those devices will be as easy as the deployment.

About Super Micro Computer, Inc.

Supermicro® (NASDAQ: SMCI), the leading innovator in high-performance, high-efficiency server technology is a premier provider of advanced server Building Block Solutions® for Data Center, Cloud Computing, Enterprise IT, Hadoop/Big Data, HPC and Embedded Systems worldwide. Supermicro is committed to protecting the environment through its "We Keep IT Green®" initiative and provides customers with the most energy-efficient, environmentally-friendly solutions available on the market.

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Powered by ZEDEDA

Founded in 2016, ZEDEDA is pioneering a cloud-native approach to the deployment, management and security of real-time edge applications at hyperscale for solutions ranging from self-driving cars to industrial robots. ZEDEDA is headquartered in Santa Clara, CA with engineering and market development teams based in India, UK, Germany and Korea. For more information, please visit www.zededa.com or follow us on Twitter at @ZEDEDAEdge.

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