Join the IoT Revolution

We are no longer debating the potential benefits of The Internet of Things. The conversation has shifted to how to deploy, connect and manage IoT devices at massive scale. To get there, we need to create new operating paradigms that move beyond the business models built for decades old networking technology.

Changing the Connectivity Paradigm

Massively scaled device volume will come from applications that instrument the ordinary or hidden business activities, but yield revolutionary results. This scale requires platform technology that supports ease of deployment, proven security and efficiency in operation.

With an advanced architecture purpose built for Low Power Wide Area Network (LPWAN) service delivery, and Operations Support System (OSS) and Business Support System (BSS) technology built from the ground up, Senet offers a modern approach to network deployment, device connectivity and customer engagement. Our cloud-based IoT connectivity platforms and services deliver efficient and secure options to connect and manage low-power, low-cost sensors and simplify complex operations related to device registration and provisioning, message accounting and settlements.

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Connecting the IoT Revolution

Building the Largest Global LoRaWAN Network

Senet has established a model of ecosystem participation and partnerships to deploy, connect, manage and monetize millions, and ultimately billions, of low-power, low-cost sensors - across the globe.

The Senet Low Power Wide Area Virtual Network (LVN™), allows end-device connectivity and application service on any LoRaWAN Radio Access Network (RAN) network using Senet's OSS and BSS. Included in the LVN are Senet's Radio Access Network, networks running on Senet's Managed Network Services for IoT (MNSi™) and other RAN providers contributing to the LVN buildout.

Senet connects all participant's gateways through its LVN, creating the largest global LoRaWAN network. The LVN allows application and solution providers to expand their service offerings beyond traditional areas of operation, unlocking opportunities for regional and global expansion. RAN Providers participating in the LVN benefit from their investment in the infrastructure by sharing in the revenue generated by all end devices connecting to their Radio Access Network.

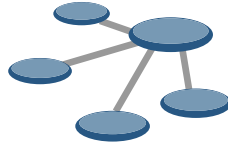## ⛶ Scalable.   🔒 Secure.   ⬡ Global.

Senet's connectivity platforms and services are built on a common cloud-based services architecture designed to scale to support the billions of devices that will ultimately connect to the Internet of Things.

Senet Network Connectivity Platforms and Services

Network-as-a-Service (NaaS)

Senet's Network-as-a-Service (NaaS) allows Application Providers and System Integrators to deliver value added IoT services to their customers. Flexible deployment options ensure secure and redundant connectivity and a quick time to coverage. Access the Senet LVN where available and we'll partner with you to deploy Radio Access Network (RAN) in support of additional application needs.

Application Providers

Connect to the Senet network to deliver actionable IoT data from sensor-enabled end devices to your applications and customers.
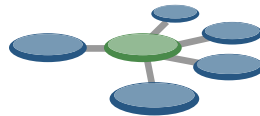
System Integrators

Create new business opportunities and deliver more value to your customers by providing IoT network connectivity for a wide variety of LoRaWAN end-devices.

Managed Services for IoT (MNSi)

Senet's Managed Services for IoT (MNSi) is a cloud-based "turn-key" network service that enables network operators and other connectivity providers to rapidly deploy Radio Access Network services on their physical assets (towers, buildings, etc.) to offer low power wide area network connectivity to their customers.
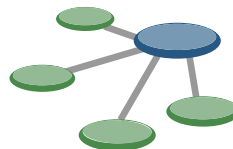
Operators

Implement a multi-tenant and multi-vendor solution for diversified go-to-market and channel strategies. Use the powerful features of Senet's Network Server and OSS/BSS functionality to onboard customers and facilitate business engagements.

Radio Access Network (RAN) Provider Services

Generate revenue from your assets (towers, roof tops, billboards, light poles) by installing low-cost LoRaWAN gateways and becoming an LVN participant. Leverage Senet's Network Design and RF Planning, RAN Site Acquisition, RAN Deployment and RAN Management and Operations services to speed time to market.
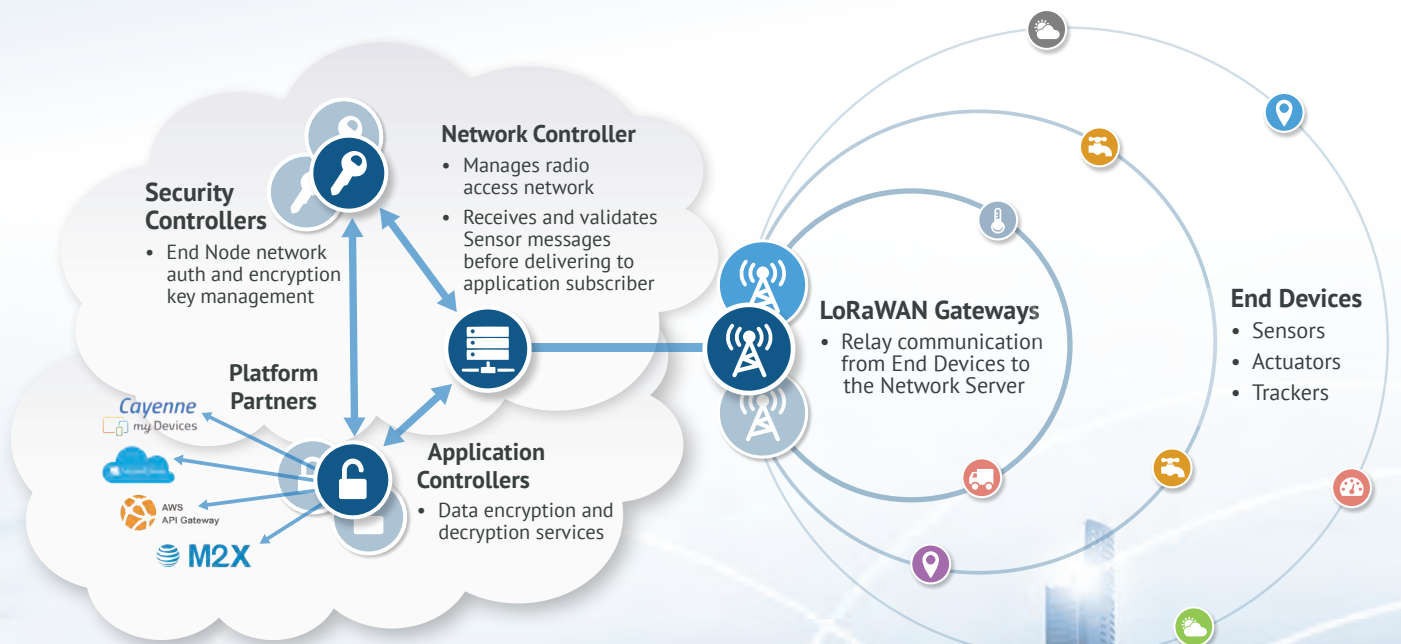
RAN Providers

Create new business opportunities by coordinating go-to-market strategies with other LVN participants, including Application Providers and System Integrators needing additional network presence. Create additional business value by providing LoRaWAN solutions using OEM LoRaWAN sensors to create a portfolio of service offerings marketed directly to your customers.

Why Senet?

A Founding and Contributing Member of the LoRa Alliance™, Senet is leading the IoT revolution with pioneering experience and expertise in building and operating Low Power Wide Area Networks (LPWANs). We are working with hundreds of businesses to revolutionize their products and operations by delivering standardized low-cost network connectivity exactly where it's needed, when it's needed and at the right cost.

Security Controllers
- End Node network auth and encryption key management

Network Controller
- Manages radio access network
- Receives and validates Sensor messages before delivering to application subscriber

Platform Partners

Cayenne my Devices
AWS API Gateway
M2X

Application Controllers
- Data encryption and decryption services

LoRaWAN Gateways
- Relay communication from End Devices to the Network Server

End Devices
- Sensors
- Actuators
- Trackers

*Platform Partners listed represent a small number of our current integrations. For a more complete list, please visit: http://www.senetco.com/a-partners

Senet Network Architecture

Senet's network architecture offers a unique set of onboarding tools, processes, and deployment models that uniquely differentiate it from competing service providers and connectivity technologies. Our platforms and services are built on a common cloud-based architecture and powered by our Network Operating System purpose built, from the ground up, to support the varied use cases and scale of the Internet of Things.

Senet Network Services

Connectivity
Global, open-standard, LoRaWAN™ network access

Data Streaming
Data streaming using a flexible set of bidirectional APIs including REST, webhooks, and MQTT, as well as out of the box integrations to popular IoT platforms

Device Management
Centralized device management and reporting with the ability to manage end device transmit power and data rate to optimize its performance, reliability, and battery life

Opportunity Across the Entire IoT Ecosystem

Senet provides a unique set of features and deployment models that allow an entire ecosystem of participants to join the IoT revolution and monetize their networks and services.

☑ **Operators/Connectivity Providers**
Rapidly deploy cost-effective LPWAN services without building a new business infrastructure

☑ **Application/Solution Providers**
Deliver more value and reduce time to market by deploying connectivity with your solution

☑ **System Integrators**
Create new revenue streams by participating in the IoT services economy

☑ **Water and Gas Utilities**
Deliver smart metering services and generate supplemental revenue from your deployed network

☑ **Municipalities**
Deploy smart city services at scale and become a trusted IoT application enabler

☑ **Industrial/Enterprise**
Implement a connectivity solution that spans across the entire manufacturing and logistics supply chain

LoRaWAN Benefits

LoRaWAN is the open global standard for carrier-grade Low Power Wide Area Network connectivity and is the best option for the largest possible set of IoT applications, especially those previously determined to be cost prohibitive.

Low Cost: Lower than cellular, WiFi and satellite

Bidirectional Communication: Ability to stream data, configure and/or manage End Devices and exert local control

Long Range: Greater than 15 miles rural and 5 miles urban

Built-In Security: Using AES-128 CCM, privacy, authenticity and message integrity are assured end-to-end

Long Battery Life: 10+ years from AA-size battery

Global Provisioning: Single global provisioning of End Devices for security, redundancy and mobility

Dynamically Optimized Performance: Fastest data rates, shortest time-on-air, and densest device deployments

LoRa Alliance Ecosystem: Open standards for worldwide interoperability

Fixed, Nomadic and Mobile Device Support: Supporting the widest range of horizontal and vertical use cases

Longest Product Lifecycles: Low cost LoRa® modems and standards-based infrastructure delivers a low TCO and superior CapEx and OpEx savings

Senet augments built-in LoRaWAN security by offering integration with world-leading security solution providers such as Gemalto and G+D Mobile Security.

gemalto
security to be free

Giesecke & Devrient

Senet Platform and Service Descriptions

	Developers Account	RAN Provider	Network-as-a-Service (NaaS)	Managed Network Service (MNSi)
Business Terms				
Pricing	Free	Contracted, (Senet Revenue Share)	Annual Contract, Billed Monthly (Capacity and Device Qty)	Annual Contract, Billed Monthly (Tiered)
Contract Term	None	5 Year	Annual /3/5 Year	5 Year
Capacities				
# Gateways	5	Unrestricted	Unrestricted	Unrestricted
# Devices	1-10	N/A	Contracted	Contracted Tiered
# Messages	500 (Combined)	N/A	Contracted	Contracted Tiered
Tech Support	E-mail	Tiered, up to 24x7	Tiered, up to 24x7	Tiered, up to 24x7
Services Offered				
Network Server Deployment	Senet Developers Cloud	Senet Cloud	Senet Cloud	Senet Cloud or Commercial Cloud
Join Controller	Senet	N/A	Senet or Third Party	Senet or Third Party
Application Server	Senet	N/A	Senet or Third Party	Senet or Third Party
Network Planning Tools		Y	Y	Y
Branded Customer Portal				Y
Portal Account Management Type	Deveopler Portal	RAN Manage-ment Portal	Application Provider Portal	Network Operator Portal
Sub Accounts (reseller)				Y
Billing Subscription Monetization			Y	Y
LVN				
LVN Participation		Y	Y	Y
LVN Access		Y	Y	Y
LVN Revenue Sharing		Y	Y	Y
Features				
Gateway Management	Up to 5	Y	Y	Y
End-Node Management	Up to 10		Y	Y
Device Monitoring	Up to 10		Y	Y
Application Monitoring			Y	Y
Log Access		Y	Y	Y
Network Avalabilty (SLA)		Y	Y	Y
Streaming API	Y		Y	Y
Partner Platform Streaming	Y		Y	Y
Bi-Directional Communications	Y		Y	Y
Over The Air Activation (OTAA)	Y		Y	Y
Activate by Personalization (ABP)	Y		Y	Y
Device RF Metadata	Y		Diagnostic Tools	Y
LoRa Geolocation			Y	Y
Billing Records API	N/A	Y	Y	Y

Accelerating IoT Solutions to Market

The Foundry serves as an open partner and developer ecosystem providing consulting services that leverage Senet's expertise to help sensor-based solution vendors to rapidly move from concept to production and ensure interoperability and quality of service once an application is deployed on the network commercially.

Foundry customers typically follow a 4-step process. Learn more by contacting foundry@senetco.com

1.

Introductory Training

2-day training course

- Theory, hands-on hardware labs, best practices and more
- Development Kit and Sandbox for hands on learning
- Private training course on your site or ours

2.

Product Ideation & Kickoff

1 week

- Go-to-market, use case definition
- Intensive, full-time development consulting
- Set up full development environment, select reference model and begin implementation
- Customized to address hardware and/or firmware development to meet your specific needs

3.

Full Product Development Consulting

2 - 4 months

- Hardware and/or firmware development consulting
- Part-time basis on your site or ours
- Flexible terms of engagement

4.

Certification Readiness

1 week (each)

- Hardware Pre-Certification Readiness (FCC)
- Senet network interoperability testing (LoRaWAN)

Senet Developer Portal

The Senet Developer Portal provides access to the Senet network for onboarding and testing of LoRaWAN end device sensors and gateways. The Developer Portal encompasses a suite of tools that allow easy device onboarding and configuration of data streaming to the customer's choice of destination.

Sign up for a FREE Developer Portal account:
https://portal.senetco.io

The **network** is ready,
what are you **waiting** for?

LoRaWAN™

Senet is a Founding and Contributing Member of the LoRa Alliance™. LoRaWAN is the open global standard for carrier-grade LPWAN connectivity, designed to connect low-cost, battery operated sensors over long distances and offers unique benefits in terms of bi-directionality, security, mobility, and geolocation.

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