

SolidRun

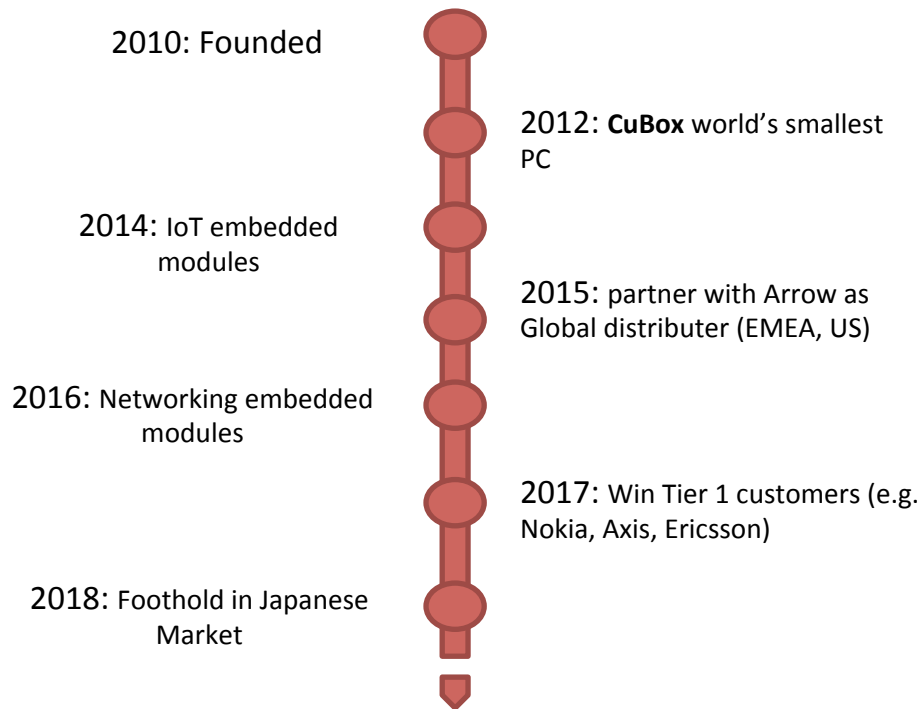
SolidSense IoT Connectivity

**Powerful Industrial & Internet of
Things Application-Ready Gateway
& Connectivity Solution**

About

- SolidRun is a developer and producer of a range of embedded computers and servers for the edge computing market.
- HQ Office located in Yokne'am Illit, Israel. Additional engineering support in Europe.
- Private, Self-funded. Kossay Omary (co-founder), Rabeeh Khoury (co-founder), Dr. Atai Ziv (CEO).
- Diversified global B2B customer base
- HC - 30 (48% R&D)
- Fast growing: **98% CAGR** in 2018 (\$9.1M, Profitable)
- Investing in breakthrough innovation within high growth segments

Major Milestones



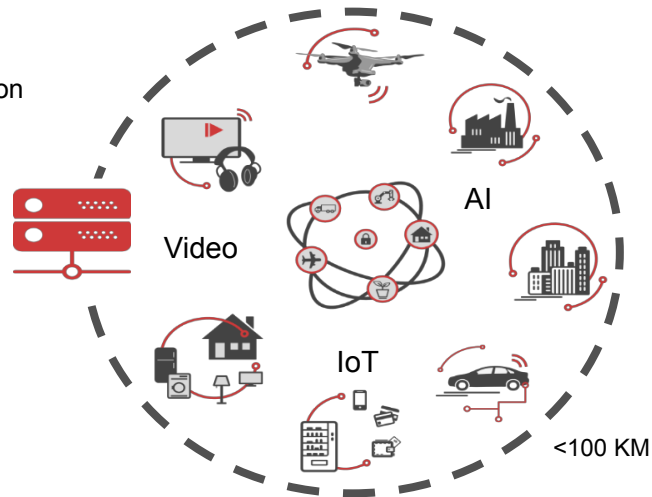
The Cloud

Remote data center



The Edge

Data processing closer to services
allows real-time analytics & optimization



Internet of things (IoT), Artificial intelligence (AI) and video streaming deployments will drive Edge Computing market growth, projected to exceed **\$9.2B** by 2023 - CAGR of **%27.3**

**SolidRun is leading the edge computing revolution
by providing modular low-power dense computers and servers**

SolidRun has over 75 active customers from more than 23 countries around the world.

Industrial & IoT (Gateway)



Inspectron Tools
Inspection tools & systems
USA



Servotronix
Control & automation solutions
Israel



Nokia
Communication solutions.
Finland



Axis Communication
Security systems.
Sweden



AeroVironment
Tactical areal systems.
USA



Vivi
Smart classroom systems.
Australia

Network (Node)



HPE
IT enterprise solutions.
USA



Ericsson
Telecommunications.
Sweden



Voleatech
Network solutions.
Germany



PicoCELA
Multi-hop connectivity solutions.
Japan



Gigaclear
Fiber broadband systems.
UK



RAD
Network edge solutions.
Israel



Selected Global Distributors



Arrow Electronics



Digi-Key Electronics

-Confidential-

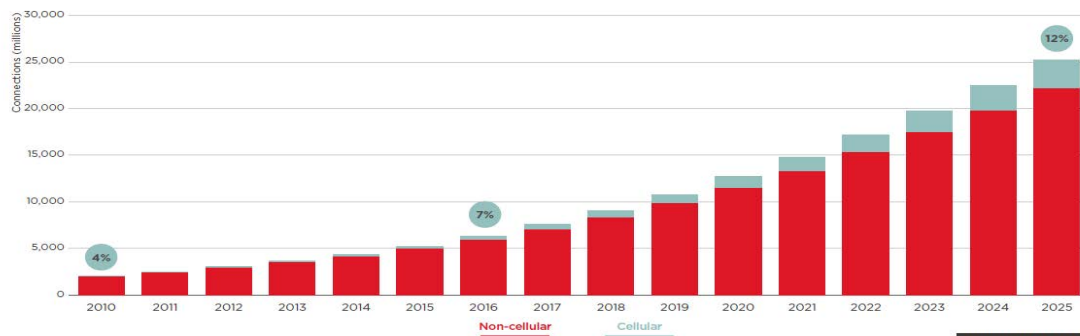


Avnet

Biggest connectivity market share coming from short range technologies.

Processing moving the edge.
SolidSense provides the basis for Edge (beyond the network) and fog computing.

IoT connections by technology, cellular share of total IoT

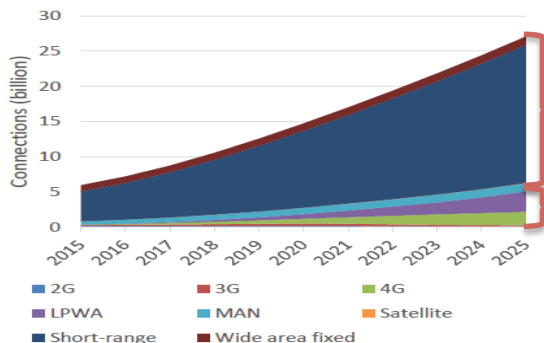


*Mobile IoT refers to low power wide area (LPWA) 3GPP standardised secure operator managed IoT networks in licensed spectrum – in particular, LPWA networks designed

Source: GSMA Intelligence

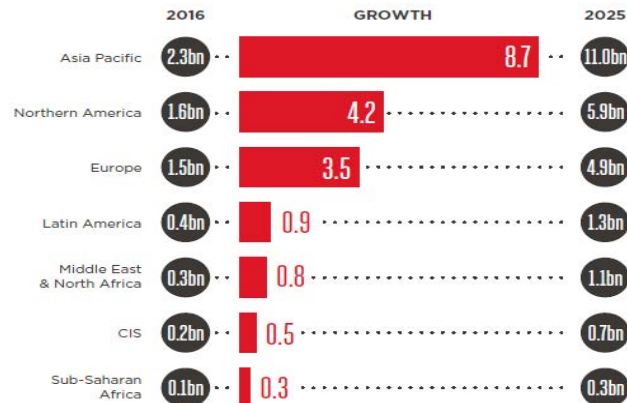
Global IoT connections 2015-2025 by technology

Source: Machina Research 2016



Unlicensed IoT:
72% IoT connection in 2025 is short range (e.g. Bluetooth, WiFi, ZigBee, Z-wave etc.)

Cellular IoT:
334 million in 2015 → 2.2 billion in 2025.



Source: GSMA Intelligence

Engineered in
cooperation with

NOKIA

Flexible & Open

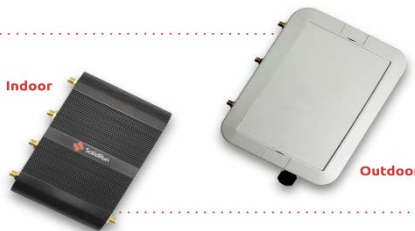
Multiple CPU choice
Indoor/Outdoor/Industrial form factors
Open source based SW
“A la carte” SW services

Feature Rich

- Integrated LTE
- Extensive networking
- Multiple 2.4GHz radios
- Gateway framework
- Device management

Best value on market

- Certified Hardware
 - Service
 - One stop shop
- Large scale deployment ready



Optimum solution for Industrial IoT deployment

Use cases



Asset tracking & People tracking

- Collect BLE / Wirepas beacons
- Logistic / Security



Smart Sensing

- Sensing everywhere
- Local IA



Vehicle Edge

- Local inventory
- Routing
- Guiding



Site monitoring

- Security
- Power generation
- Power optimization



Smart Building

- People counting
- Usage optimization
- Security
- Health

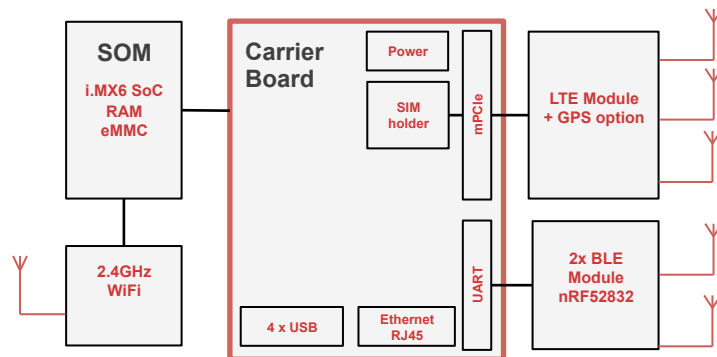
SolidSense Gateway Indoor is an enterprise Internet of Things gateway designed for servicing a local network of IoT devices with a range of solutions and business applications.

Key Features

- NXP i.MX6 Arm Cortex A9 SoC
- Energy efficient
- Small footprint & fanless
- Range of network & connectivity, including GPS, WiFi, Ethernet & cellular.
- Extruded aluminum enclosure

Applications

- Cellular sites monitoring
- Smart building
- Industrial IoT smart factory
- Smart retail applications
- Aggregation point for local sensory data



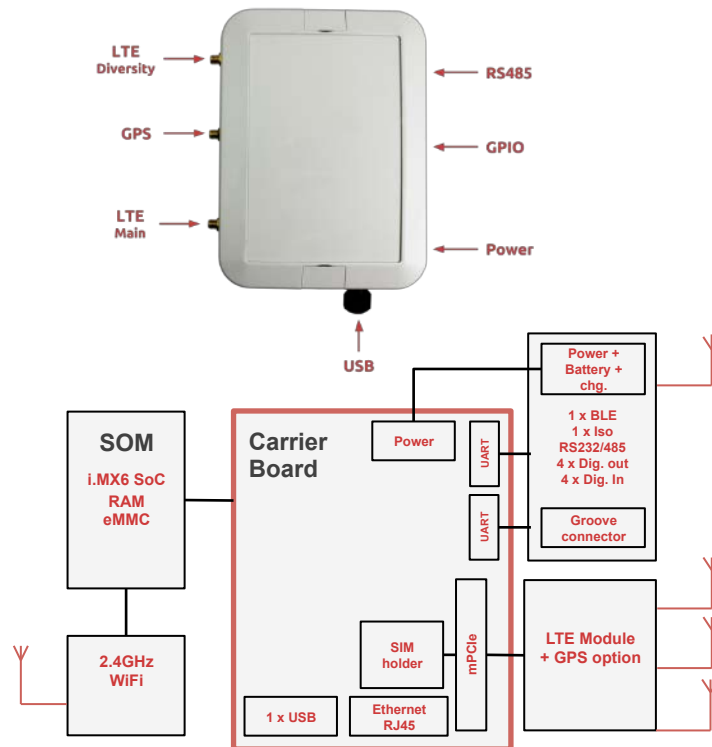
SolidSense Gateway Outdoor is a robust gateway tailor-made for demanding rugged, industrial and outdoor applications offering a feature-rich high connectivity platform.

Key Features

- NXP i.MX6 Arm Cortex A9 SoC
- Energy efficient & fanless
- Small footprint & modular
- Feature-rich with a range of connectivity options.
- Rugged outdoor plastic enclosure

Applications

- Automotive & transport
- Industrial & production floor
- Outdoor IoT gateway applications
- Infrastructure gateway applications



SolidSense Gateway Industrial is a robust gateway tailor-made for demanding rugged, industrial application offering a feature-rich high connectivity and processing platform.

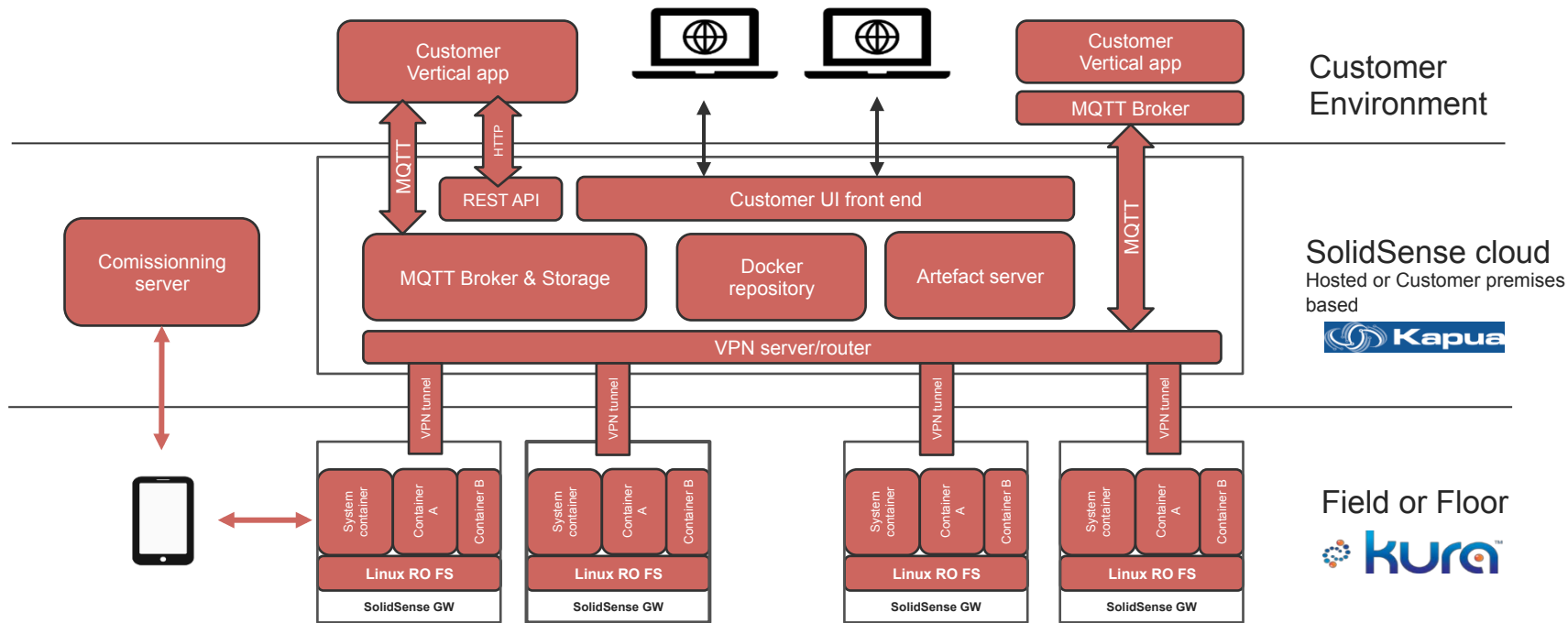
Key Features

- NXP i.MX6 ARM Cortex A9 SoC
- option for NXP i.MX8 Cortex A53/A35
- Energy efficient & fanless
- Small footprint & modular
- Feature-rich with a range of connectivity options.

Applications

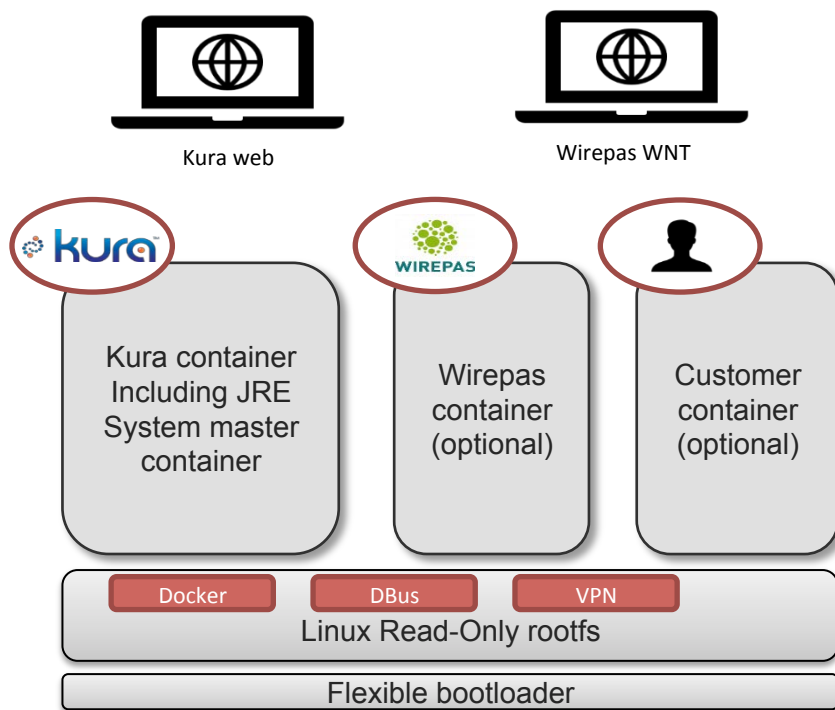
- Edge/Fog IA
- Automotive & transport
- Industrial & production floor
- Infrastructure gateway applications

Put 3D render /drawing



Open Source Solution

Software Architecture



Key Features

- Linux based platform with Docker and Dbus
- Read-only root file system with active/backups version
- Eclipse IoT Kura container for IoT application development and integration
- Automated software deployment and upgrade
- Commissioning via smartphone application

SolidSense N6 Indoor

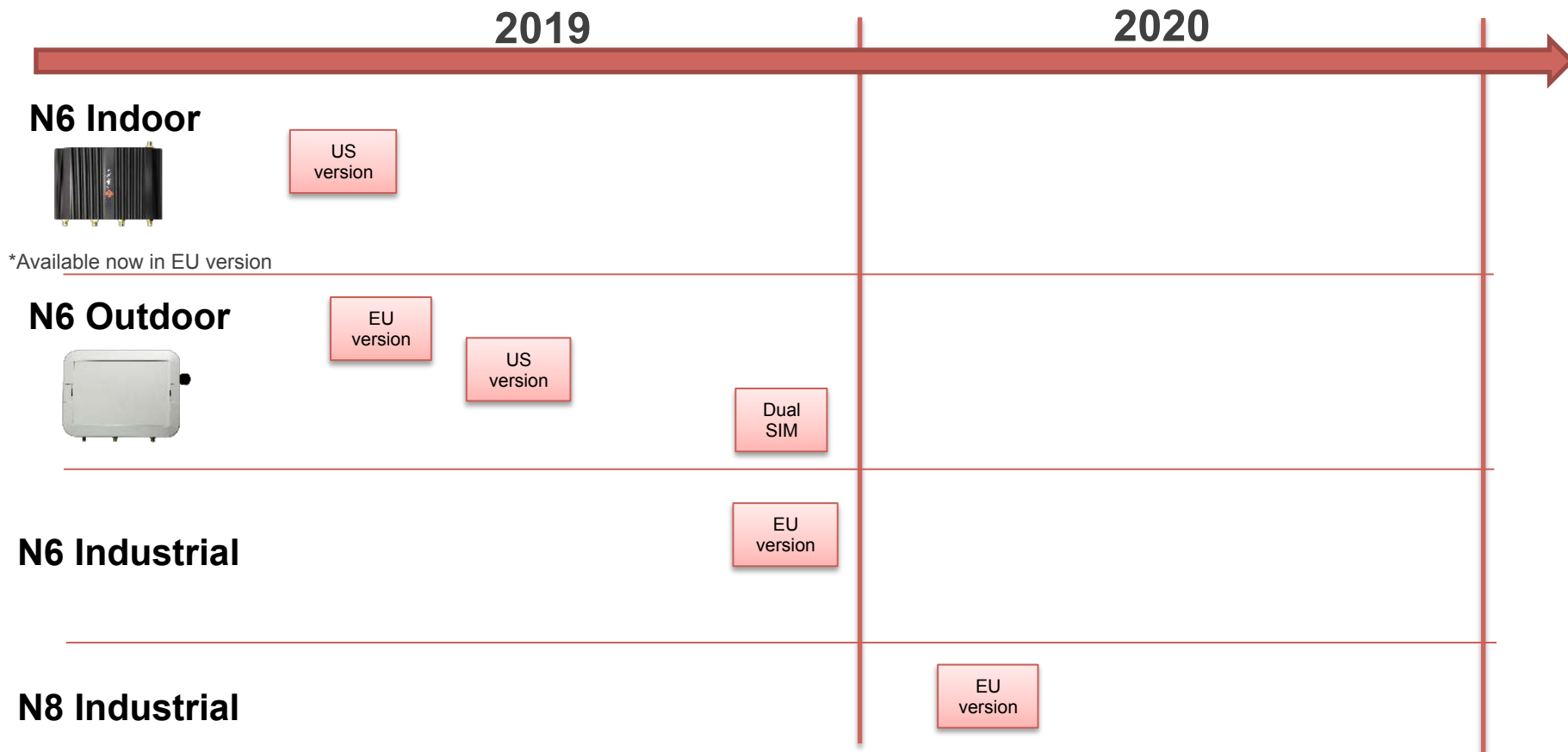
SolidSense N6 Outdoor

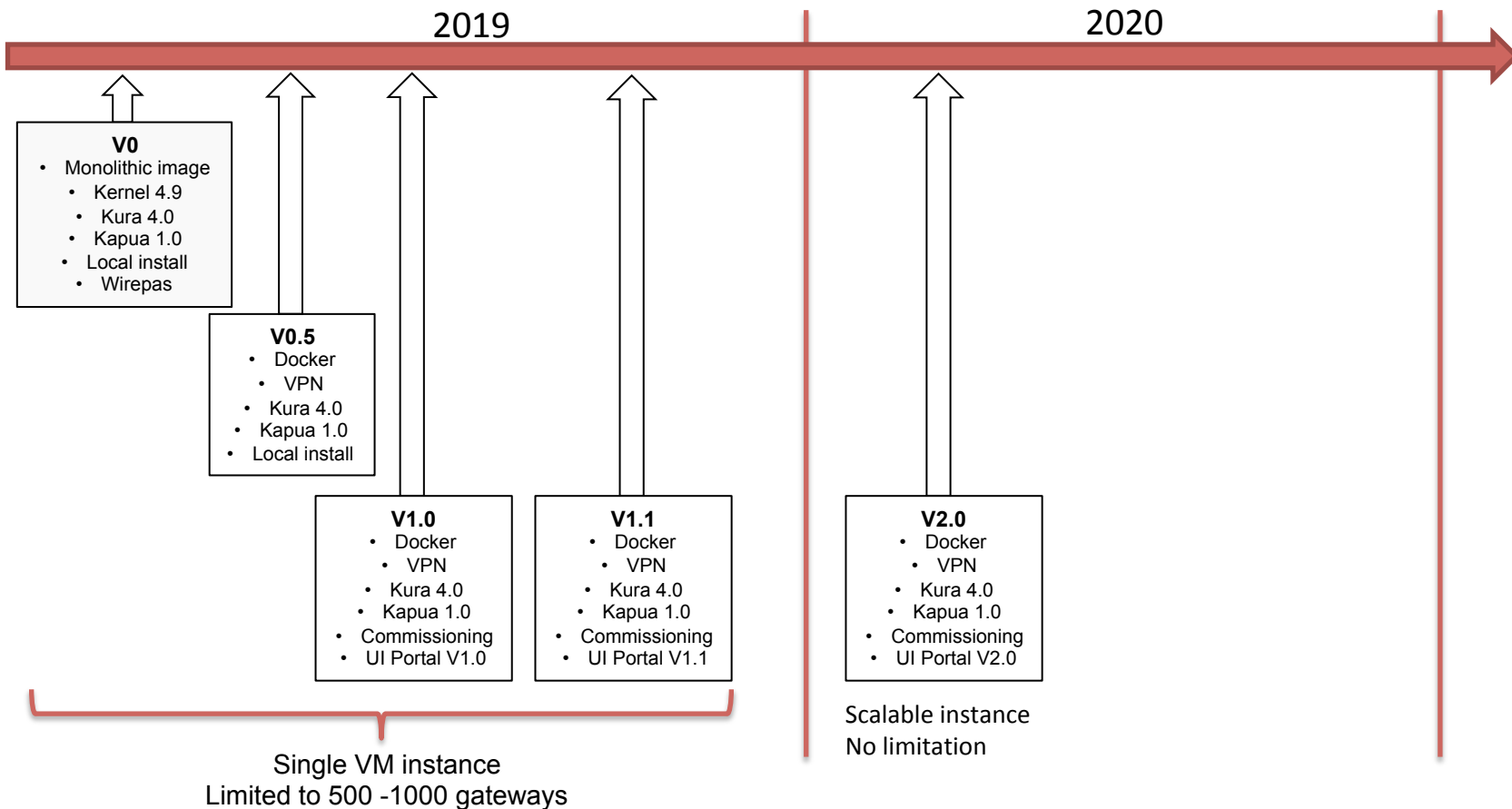
Processor	i.MX6 single/dual/quad-core Arm® Cortex® A9 (1.2Ghz)	i.MX6 single/dual/quad-core Arm® Cortex® A9 (1.2Ghz)
Memory	Up to 2GB DDR3 – 8GB eMMC	Up to 2GB DDR3 – 8GB eMMC
Network	Ethernet RJ45 10/100/1000 (max 470 MB/s) WiFi and Bluetooth 2.0 (2.4 GHz) Dual Bluetooth Low Energy 4.2 (Software Defined Radio based on Nordic Semiconductor) LTE Cat 4 EU + GPS (with fallback on 3G/2G) LTE Cat 4 US + GPS (with fallback on 3G) LTE Cat 4 AU/LAT + GPS (with fallback on 3G) LTE Cat M1 EU/US + GPS	Ethernet RJ45 10/100/1000 (max 470 MB/s) WiFi and Bluetooth 2.0 (2.4 GHz) Bluetooth Low Energy 4.2/5.0 (Software Defined Radio based on Nordic Semiconductor) LTE Cat 4 EU + GPS (with fallback on 3G/2G) LTE Cat 4 US + GPS (with fallback on 3G) LTE Cat 4 AU/LAT + GPS (with fallback on 3G) LTE Cat M1 EU/US + GPS (future)
Connectivity	4 x USB 2.0 HDMI MicroSD Physical SIM	1 x USB 2.0 type A MicroSD Physical SIM RS485 (isolated, on external connector) Solid-state relay output (isolated, on external connector) Digital inputs (isolated, on external connector)
Northbound Protocols	Ethernet, WiFi, LTE MQTT	Ethernet, WiFi, LTE MQTT
Southbound Protocols	Ethernet, WiFi Bluetooth, BLE 4.2, Wirepas RS-485, Modbus, OPC-UA (via USB)	Ethernet, WiFi Bluetooth, BLE 4.2/5.0, Wirepas RS-485, Modbus, OPC-UA
Power	7V to 36V via twist and lock jack	7 V to 36 V with reverse polarity protection (battery backup)
Certifications	CE, FCC/CSA	CE, FCC/CSA
Temp. Range	0°C to 60°C	-25°C to 65°C
Dimensions	120 x 80 x 30mm	175 x 130 x 45mm
Enclosure	Extruded aluminum, no IP, 5 SMA (2.4GHzx3, LTE, GPS)	High resistance ABS (UL94V), IP 65, 3 SMA (LTEx2, GPS)

SolidSense N6 Industrial

SolidSense N8 Industrial

Processor	i.MX6 single/dual/quad-core Arm® Cortex® A9 (1.2Ghz)	i.MX8 Dual/Quad-core Arm® Cortex® A53 / Cortex® A35 (up to 2.0Ghz) Optional NPU for AI acceleration
Memory	Up to 2GB DDR3 – 8GB eMMC (expandable)	Up to 4GB LPDDR4 – 8GB eMMC (expandable)
Network	Ethernet RJ45 10/100/1000 (max 470 MB/s) WiFi and Bluetooth 2.0 (2.4 GHz) Bluetooth Low Energy 4.2 (Software Defined Radio based on Nordic Semiconductor) LTE Cat 4 + GPS (with fallback on 3G/2G) LTE Cat M1 EU/US + GPS	2x Ethernet RJ45 10/100/1000 WiFi and Bluetooth 2.0 (2.4 GHz & 5GHz) Bluetooth Low Energy 4.2/5.0 (Software Defined Radio based on Nordic Semiconductor) LTE Cat 4 + GPS (with fallback on 3G/2G) LTE Cat M1 EU/US + GPS
Connectivity	2 x USB 2.0 HDMI MicroSD 2xPhysical SIM CAN Bus RS485 (isolated, on external connector) Solid-state relay output, Digital inputs	2 x USB 2.0 type A HDMI MicroSD 2x Physical SIM Solid-state relay output (isolated, on external connector) Digital inputs (isolated, on external connector)
Northbound Protocols	Ethernet, WiFi, LTE MQTT	Ethernet, WiFi, LTE MQTT
Southbound Protocols	Ethernet, WiFi Bluetooth, BLE 4.2, Wirepas RS-485, Modbus, OPC-UA (via USB)	Ethernet, WiFi Bluetooth, BLE 4.2/5.0, Wirepas RS-485, Modbus, OPC-UA
Power	7V to 36V with reverse polarity protection (battery backup)	7 V to 36 V with reverse polarity protection (battery backup) PoE source for external peripheral
Certifications	CE, FCC/CSA	CE, FCC/CSA
Temp. Range	-25°C to 65°C	-25°C to 65°C
Dimensions	150 x 150 x 40mm	150 x 150 x 40mm
Enclosure	Aluminum , IP 42, 3 SMA (LTEx2, GPS) DIN rail mount	Aluminum , IP 42, 3 SMA (LTEx2, GPS) DIN rail mount





www.solid-run.com

For more information: info@solid-run.com