6th Mobile IoT Summit

Dr. Georges Karam

Sequans Communications

Advances in LTE-M and NB-IoT Chip Technology

Scaling Global Deployment

Dr. Georges Karam

Founder, Chairman, CEO | Sequans Communications

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Sequans Communications

Acknowledged Chip Leader in LTE for IoT

calliope

monarchSX

monarchN

monarch

monarchSiP

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Evolution from M2M to IoT

Billions of Things
LTE-M & NB-IoT

Millions of Things
2G Wireless

Low-power Wireless Connectivity

- Maturity of the technology
- Readiness of the networks
- Readiness of the ecosystem: chip/module/device/service

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Sequans is Ready for Global Deployment

- Monarch – is the first genuine LTE-M chip introduced in 2016
- 2017 dedicated to maturing our technology end-to-end and certifying modules and devices
- Introduced derivative chips: Monarch SX, Monarch SiP and CLOE tracker platform

- Certified by AT&T and Verizon in the USA; engaged with carriers worldwide

at&t verizon

docomo SoftBank T-Mobile orange Telefónica

TELSTRA kt 中国电信 CHINA TELECOM Sprint Vodafone

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Monarch Designed For LTE for IoT

- **Low Power**
  Enables battery life of 1 month for consumer tracker up to 15 years for smart meter
- **Low Cost**
  Due to high level of integration, simple BOM, and Single SKU™ RF front end serving all frequency bands worldwide
- **Easy Integration**
  With pre-certified modules; application specific platforms, and native support of cloud

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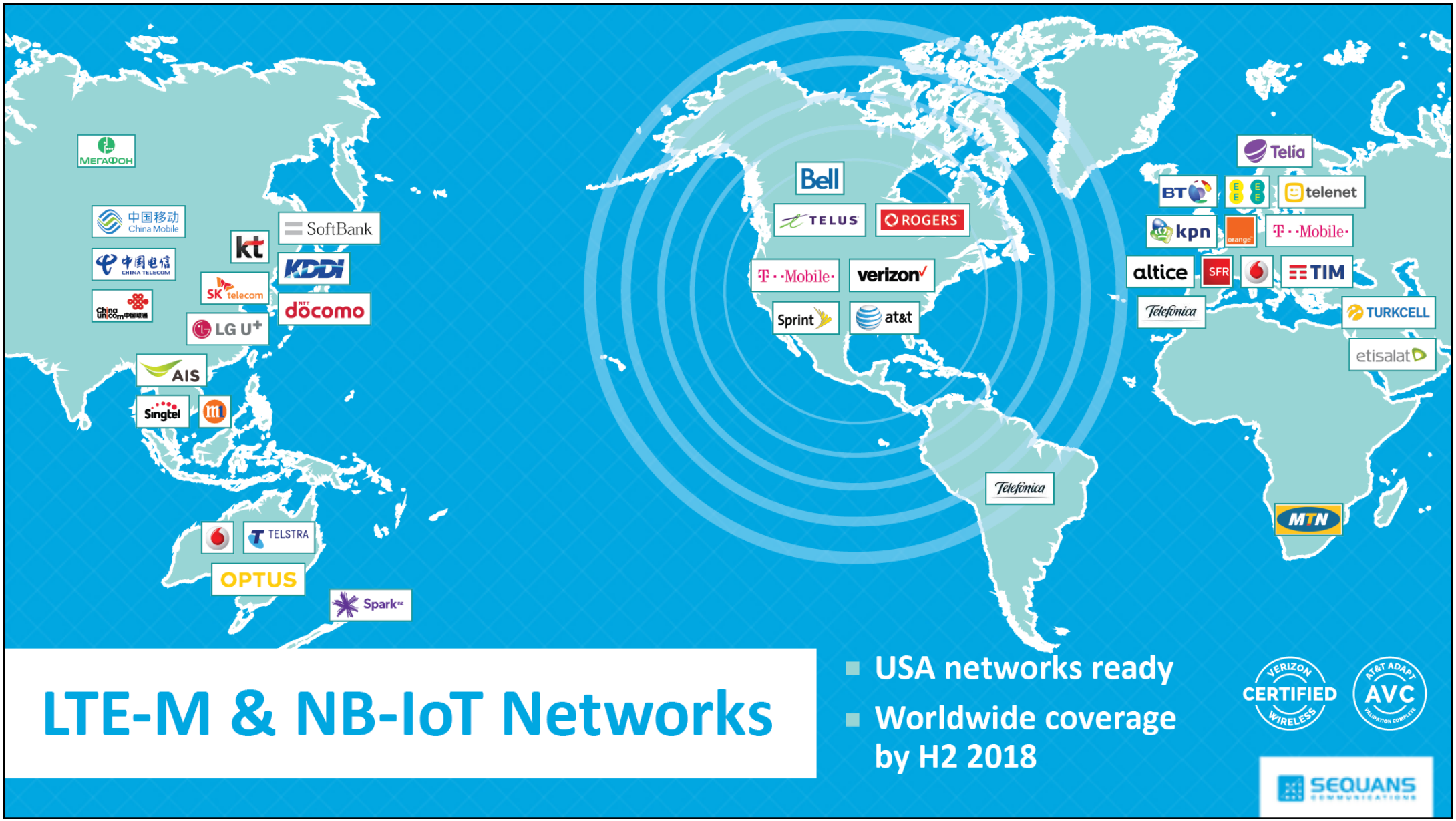
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telenet
kpn
orange
T-Mobile
altice
SFR
TIM
Telefónica
TURKCELL
etisalat
MTN
LTE-M & NB-IoT Networks
USA networks ready
Worldwide coverage by H2 2018
VERIZON CERTIFIED WIRELESS
AT&T ADAPT AVC VALIDATION COMPLETE
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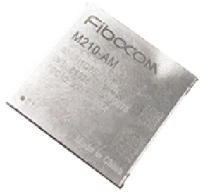
Module Partners

AsiaTelco TECHNOLOGIES	 Fibocom	FOXCONN	gemalto security to be free
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Devices Ready

Sequans Monarch-based Devices

ENGIE Lab

UPIDO LTE-M & NB-IoT Button

orange™

LTE-M Live Button

FOXCONN®

LTE-M & NB-IoT WAN Button

NB-IoT Data Transfer Unit

NimbeLink™

LTE-M Asset Tracker

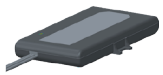
Skywire® LTE-M Development Kit

WISOL

uWhere LTE-M Tracker

REMO WIRELESS

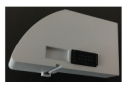
Bailong Telematics LTE-M On-Board-Unit



SavTrack® LTE-M Tracker

SERCOMM

Advanced Metering Infrastructure FAN NB-IoT Unit



LTE-M & NB-IoT Button

LinkLabs

LTE-M Sensor Suite

Gemtek

LTE-M WLTSMS Consumer Tracker

Examples of products publicly announced

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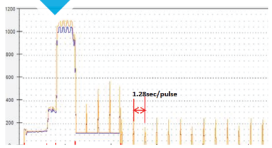
Our Field Experience

COVERAGE

CAT-M CE mode A extends by 2-5dB the coverage beyond legacy LTE

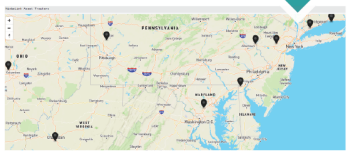
DYNAMIC POWER MANAGEMENT™

Extensive field testing proving the promise of the low-power features (PSM, eDRX…)



LOCATION SERVICES

- CLOE services (GNSS, WPS, BLE)
- LTE Positioning Protocol with ECID: field test performed shows 50m accuracy



CLOUD CONNECTOR™

Google amazon at&t verizon Microsoft

Successful testing with many cloud providers

VoLTE

VoLTE CAT-M field testing showing Fair Mean Opinion Score (MOS) in near/mid/far cell coverage

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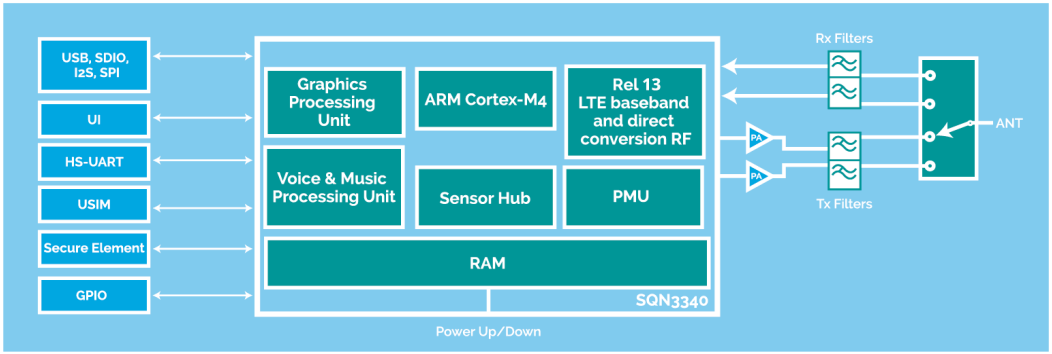
Extending Our Technology Leadership

monarchSX

SoC for Wearables, Feature Phones and Sophisticated Platforms

- LTE-M & NB-IoT System-on-chip
- Worldwide Single-SKU
- Sampling Now



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Extending Our Technology Leadership

Introducing monarchSiP

All-in-one System-in-package LTE-M and NB-IoT for Ultra-compact Devices

- All-in-one SiP from SEQUANS COMMUNICATIONS / SKYWORKS
- Ultra Small and Thin
  8.8 mm X 10.8 mm X 0.95 mm
- Every Major Component for
  LTE-M or NB-IoT Modem System
- Extremely Reduced RBOM
- Worldwide Single-SKU
- Leveraging Monarch Carrier Certifications
- Sampling Now

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Extending Our Technology Leadership

Introducing monarchN

Ultra Integrated Chip for Pure NB-IoT Operation

- Optimized NB-IoT Chip for Massive IoT
- 3GPP Release 14 and Upgradable to Release 15
- Extremely Reduced BOM
- Ultra Low Power Consumption
- Worldwide Single-SKU

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Thank You

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