



M2M: Remote Monitoring and Control – Multi-National deployments

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Agenda

- Introduction
- M2M Barometer
- Remote Monitoring and Control
- Global Deployment Best Practices
- Case Study
- Summary
- Questions



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M2M Barometer Highlights



Vodafone is the Global Leader in M2M

| | | | |
|---|--|--|---|
| Unique technology solutions |  | 22.9 Million M2M connections |  |
|  | Access to 640+ Networks |  | #1 Analyst ranking Garter ('14/'15) Analysys Mason ('12-'15) Machina Research ('14/'15) |
| 50+ Partners in M2M Ecosystem |  | Dedicated M2M Team of over 1400 |  |

To connect every machine to transform lives and businesses



Analysts recognise Vodafone as the clear leader in M2M



Rated an **best worldwide** CSP in M2M Communication Service Provider Scorecard – awarded for 4th time in 2015



Vodafone **positioned as a leader** in Gartner Magic Quadrant for Managed M2M Services – 2014 / 2015

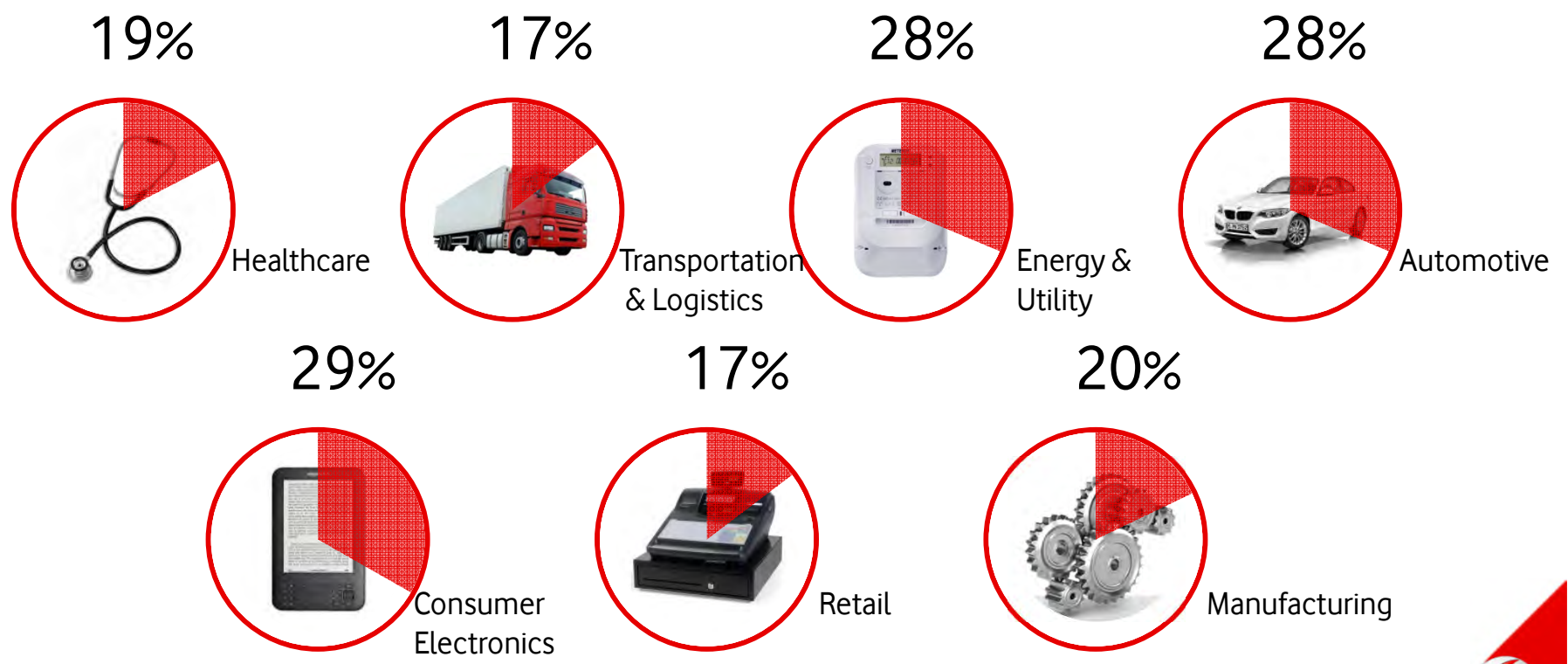


First place in M2M Communication Service Provider Benchmarking Study – awarded for 4th time in 2015



Adoption is accelerating around the world in every major vertical ...

2014

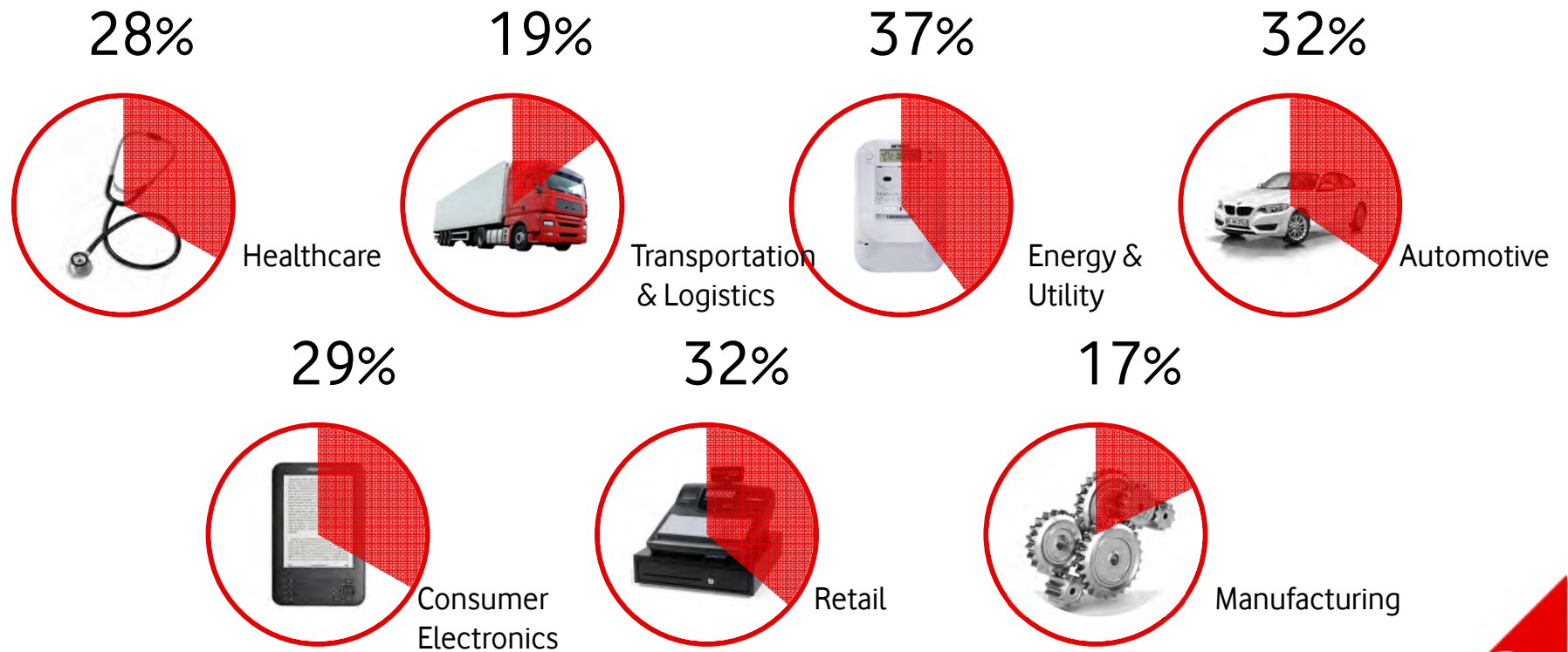


Source: The M2M Adoption Barometer 2014 by Vodafone/Circle Research



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2015



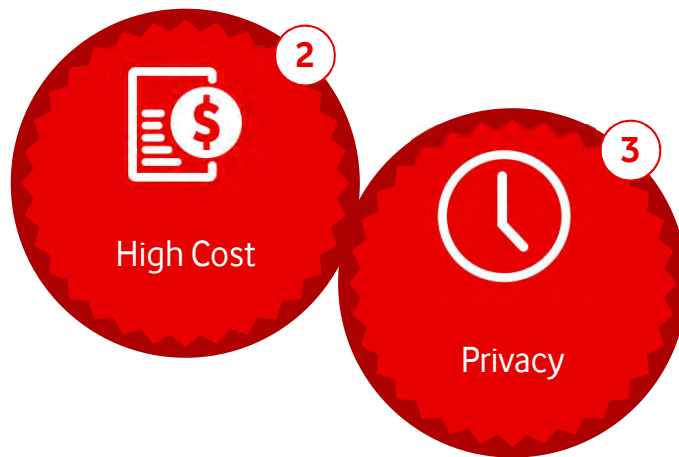
Source: The M2M Adoption Barometer 2015 by Vodafone/Circle Research



The biggest benefit is process & productivity improvements



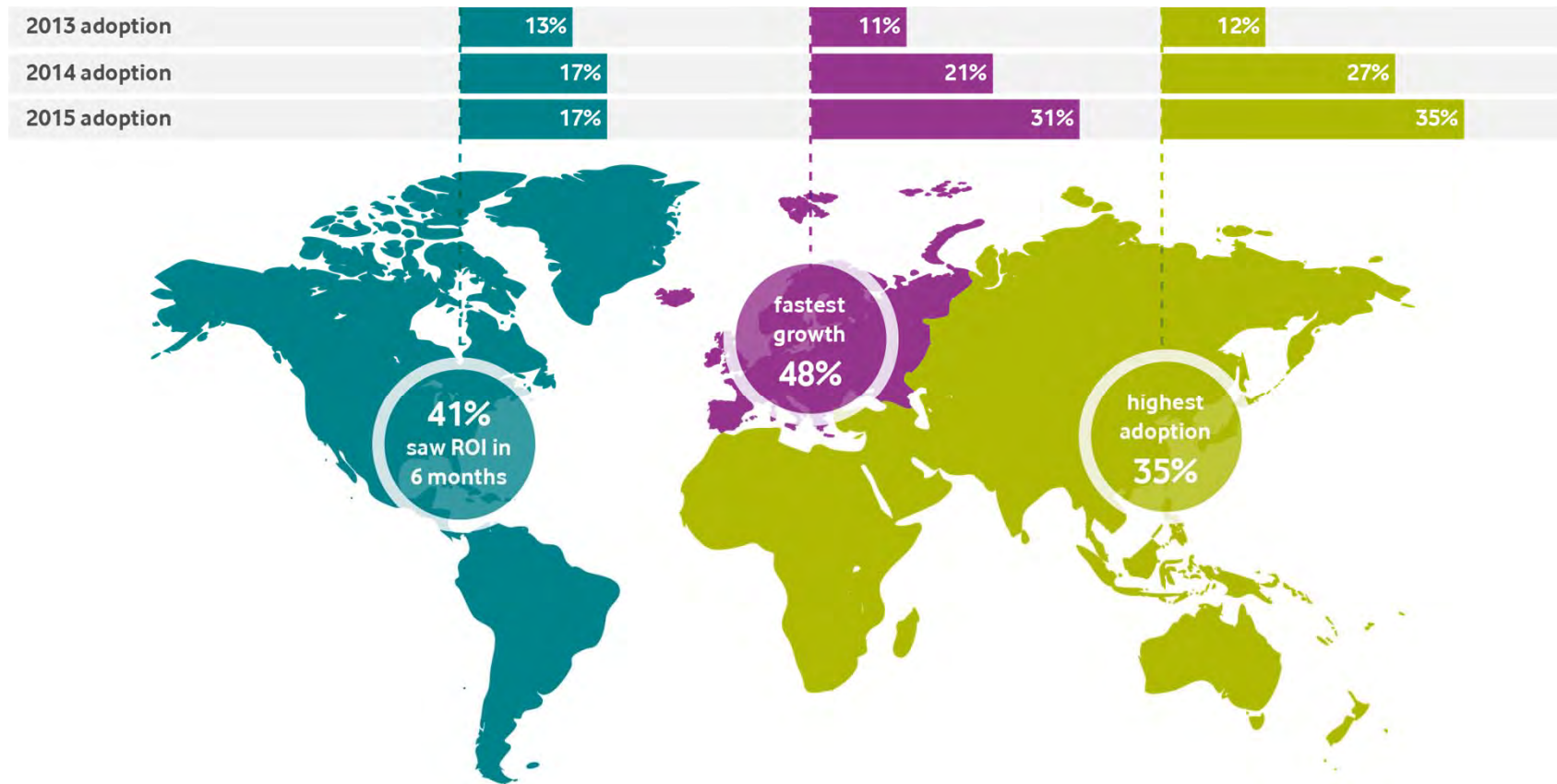
The biggest barrier is Security



Source: The M2M Adoption Barometer 2015 by Vodafone/Circle Research

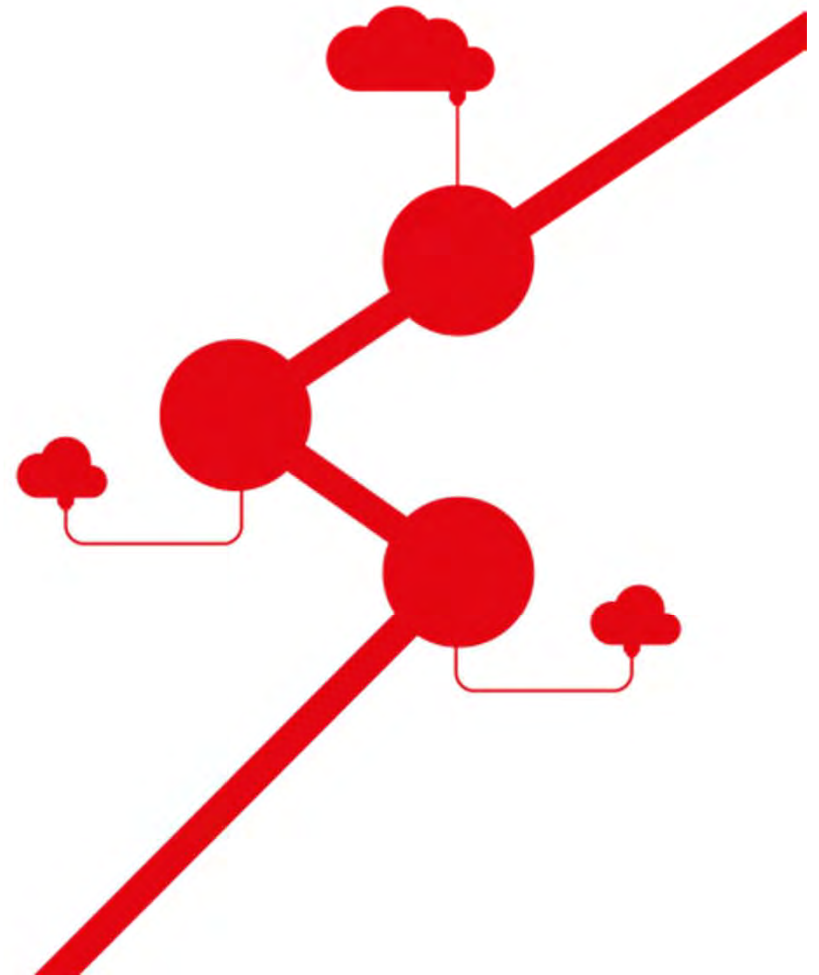


AMEAP leads adoption, Europe shows fastest growth, Americas shows fastest ROI



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M2M Remote Monitoring Control



M2M solution: remote monitoring and control

A multi-purpose, multi-functional solution specifically designed to remove cost and inefficiency from worldwide asset monitoring

Enterprise challenge

- Monitoring large quantities of devices or machines across multiple locations and countries
- Ineffective, manual processes
- Unnecessary complexity and operational inefficiency
- Service outages and additional cost due to unplanned asset maintenance

Solution

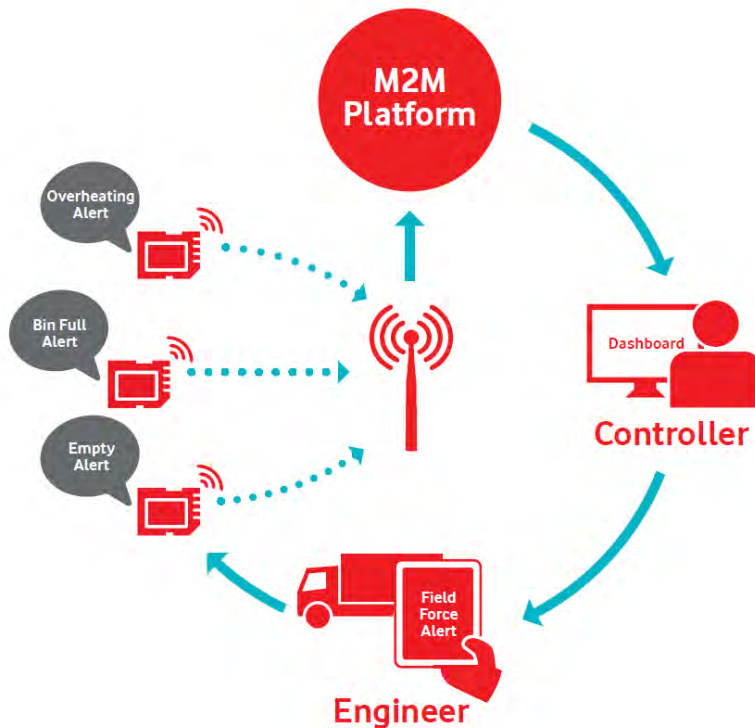
- Remote monitoring and control for real-time asset condition monitoring and remote management

Benefits

- Optimise use of equipment, pre-emptive maintenance
- Reduce machinery and maintenance downtime
- Significant cost savings in maintenance, logistics, service and repair
- Visibility and control
- Lower energy and usage costs
- Real time information on asset status
- Solve problems at minimum time and cost



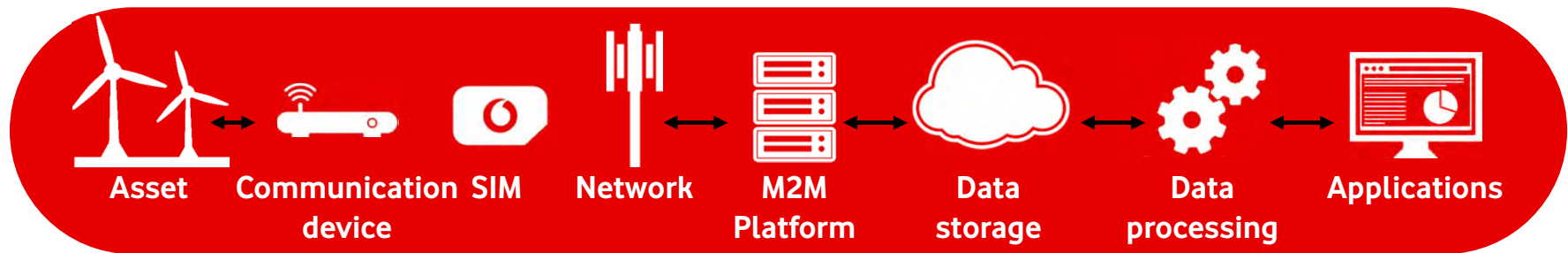
Remote Monitoring & Control



- Communications module installed in each piece of equipment
- Logs data from sensors (i.e. temperature, vibration, activity or other variables)
- Using mobile data network, device communicates to central management system
- Management system looks for anomalies (unwanted vibration, increased temperature, fluid levels, equipment faults)
- Action performed to mitigate emerging fault



The Machine to Machine Success Chain



M2M Deployments can grow in complexity



3 Globalization of M2M Solution



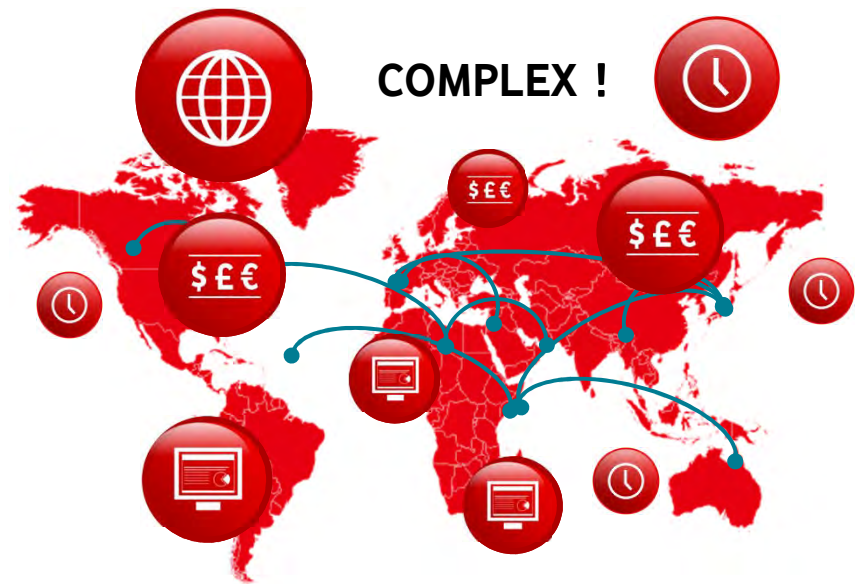
Typical Wireless M2M project

- Start in one country, then may expand to neighboring countries before going rest of world
- Retrofit of existing assets with external terminal
- Integrate wireless into the terminal
- Adapted from legacy deployment



Complexity of Global M2M Deployment

- Numerous countries = numerous networks
- Country specific SIMs
- High roaming charges
- Different management platforms
- No domestic roaming
- Potential unknown roaming to other countries
- Individual contracts for each country
- Multiple fix agents



Additional Design Consideration

- Application designed for cellular wireless networks
- Communication Protocol vs latency
- Data consumption
- Firmware management
- Remote diagnostics
- Mobile Originated vs Mobile Terminated data
 - Wakeup SMS
- Radio type country/network certifications
- Manufacturing/Integration considerations



Multi-National Connectivity Solution

- True Global Connectivity
- Core network designed for M2M
- Single SIM/Part number
- Single backhaul for all communication
- Price plan that mitigates roaming costs
- Efficient roaming management
- Rogue SIM/Device management
- Single management portal
- Dedicated platform to M2M
- Device management to fit device life cycle
- Single support organization

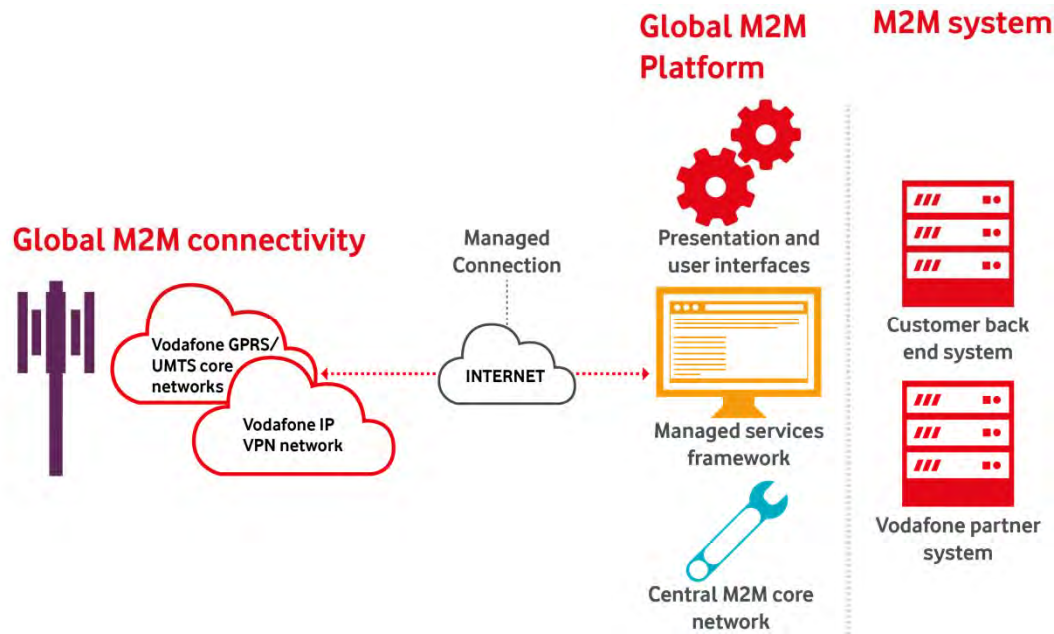


Global M2M Platform

Dedicated M2M managed service engine

The Global M2M platform enables devices and assets with a global SIM to communicate securely with your M2M back-end system

M2M devices

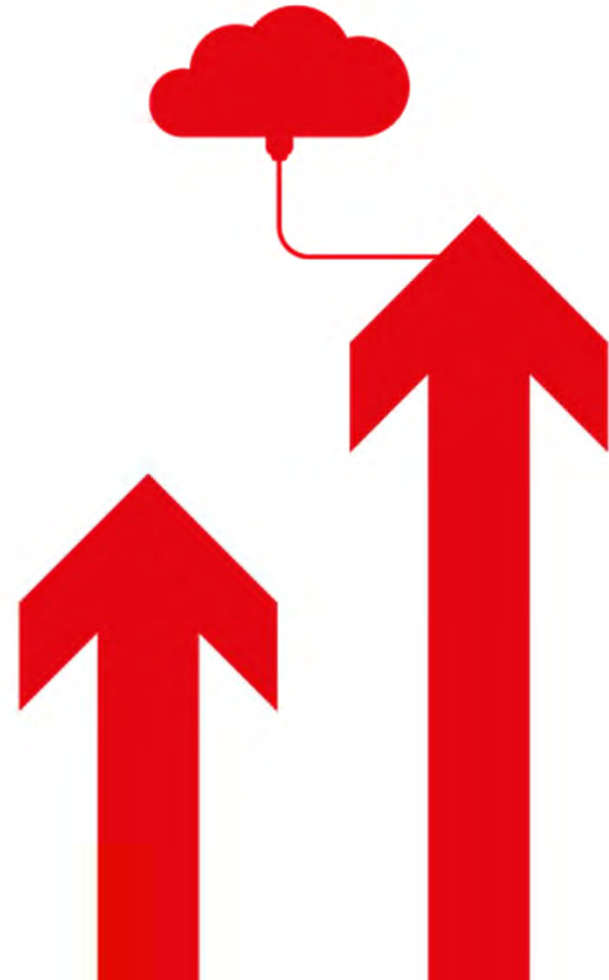


Secure, fully integrated and managed end-to-end communications



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Case Studies



Industrial Case : KONE



Company

Global leader of elevators and escalators based in Finland, which provides innovative and eco-efficient solutions

Solutions

Remote monitoring solution for smart elevator maintenance

Challenges

- Mobile solution to deliver voice and data
- Fixed line into an elevator

Key Benefits

- Operational improvement
- Improved proactive services
- Reduced implementation time
- Ease of doing business



Industrial Case : Atlas Copco



Company

Swedish industrial company founded in 1873. Specialist provider of compressors, expanders and a wide a range of other solutions for industrial manufacturing

Solutions

Remote monitoring solution to check the performance and health of its compressed air products on customer sites around the world

Challenges

- Gathering enough data to understand customers needs from products
- Difficulty to scale due to different solution (fix/wireless) in each county

Key Benefits

- Improved customer services with on-time delivery
- Ability to understand when installation optimization is needed
- New customer intelligence to boost new product development



Industrial Case : VANMOOF

VANMOOF

Company

Dutch bike manufacturer founded in 2008. It creates urban commuter bikes, sold in Europe, Asia and North America.

Solutions

Robust bike tracking solution to combat bike theft

Challenges

GPS connectivity in its e-bike to help combat bike theft and map commuter routes.

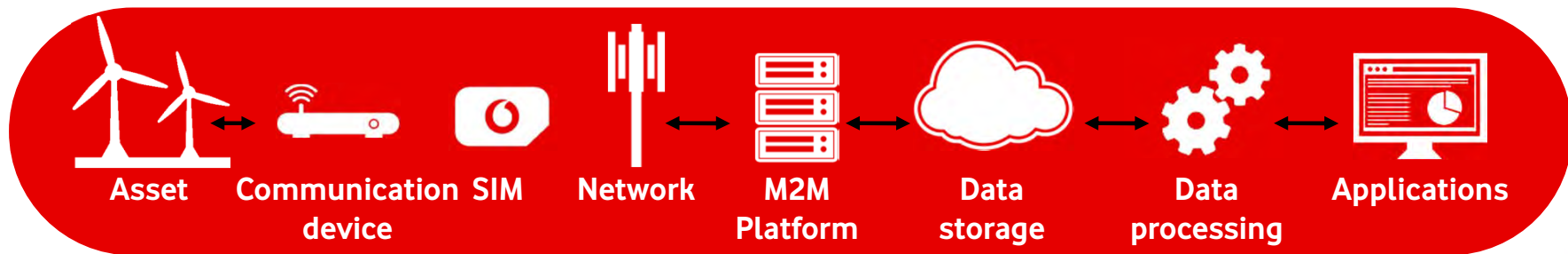
Key Benefits

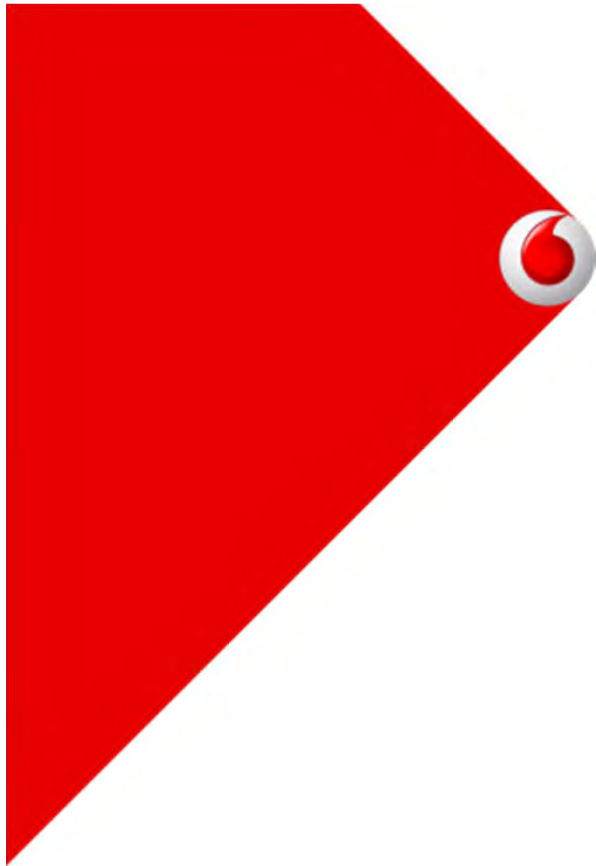
- Give customers ability to monitor and control bike
- GPS connectivity to help combat bike theft
- Simplified management with one SIM and one network



Summary

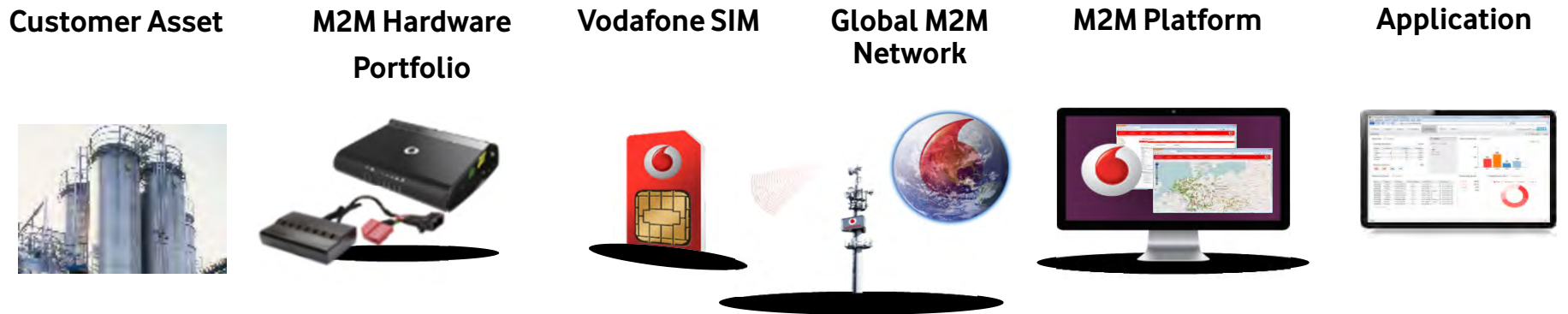
- M2M Adoption is growing
- M2M solutions become complex
- The right partner is key
- Special design considerations for global deployments









Thank you



Vodafone's M2M end-to-end solution



Vodafone delivers the complete M2M solution (end-2-end)

-  One Network
-  Global SIM

-  SLAs
-  Partner

-  M2M Platform
-  Strong Brand

