Embedded Networking Systems in the Smart Home & Office

Moderator:
Ansgar Schlautmann, M2M Practice Principal, Arthur D. Little

Panelists:
Carsten Eickert, Director Media, IT & Telecoms Services, Alcatel-Lucent
Joy Weiss, CEO, Dust Networks
Toni Goeller, Vice Chair, IEEE Germany
Michael Emmert, Managing Director, INSIDE M2M
Operators want to significantly broaden their service portfolio over time

- **Horizontal applications:** Mass market B2B & B2C propositions
- **Vertical applications:** complex “mission critical” solutions that require a high degree of customization and expertise
- Will Telcos move into adjacent industries as a next step?

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**Source:** Arthur D. Little Analysis
Complex solutions, Business cases sometimes unclear

- Multitude of applications and players need to be managed across multiple platforms
- Information needs to be customized to the respective need
- Cross-network capabilities required (Fixed, wireless, near field, etc.)

Source: Arthur D. Little Analysis
Operators move from connectivity towards service provisioning

Today’s Focus
- Mobile devices
- Network operators
- Service enablers
- System integrators
- Service providers
- Resellers
- Customers

Future Focus of Telco companies?

Source: Arthur D. Little Analysis
The fight between OTTPs and Telcos has just started...

Source: Arthur D. Little Analysis
Carsten Eickert
Director Media, IT & Telecoms Services
Alcatel-Lucent
Broadband everywhere is speeding up life and business. It takes no time to go from having a new idea to touching people’s lives. We must innovate—and help our customers innovate—at the speed of ideas.

Ben Verwaayen
Chief Executive Officer

FAST FACTS

- Headquarters: Paris, France
- Annual Revenues: approx. €16 billion
- Employees: 77,000 +
- 130 countries
- R&D Budget: €2.5 billion
- Active Patents Held: 27,900
- Patents Awarded in 2010: 2,400
- Nobel Prizes Won: 7
Connected Devices in Intelligent Networks

Generation follows Consumption

Energy Networks

Yesterday
Consumption follows Generation

Energy Networks Today
Customer = Meter

Low Data Volume
Mainly One Way

METER

Communication = in-home screen

LIMITED USE OF DATA

BILL CONTROL
(Fraud/theft)
STATISTICS

Low Bandwidth
High Latency
Solutions Prime

Missed opportunity to address the true Challenges
Connected Devices in Intelligent Networks

GRID

(MEAN) REAL TIME

Meter Data
Pre-paid usage Data
Dynamic Pricing Data
Interactive Consumer GUI Data
Micro-Production Data
Energy Management Services
Smart Home Energy Mgr Feedback
...

BROADBAND

HOME

Conference Sponsors
Joy Weiss
President & CEO
joy@dustnetworks.com
Dust Networks Overview

- Dust Networks is the leader in intelligent wireless sensor networking, supporting a broad portfolio of low power 802.15.4 wireless standards: IEC62591, 6LoWPAN, ZigBee

- Pioneering the wireless mesh networking field with SmartMesh, the world’s lowest power 802.15.4 mesh solutions
Wireless mesh slashes the cost of monitoring and control networks: “last mile” for M2M

Mesh for reliability & reach
Low power radios for long battery life
M2M zone	Conference

Connected Devices in Intelligent Networks

Building Automation
- Security
- HVAC
- AMR
- Lighting Control
- Access Control

Energy Management & Efficiency
- Demand Response
- Net Metering
- AMI, SCADA

Consumer Electronics
- TV
- VCR
- DVD/CD
- Universal Remotes

Personal Health Care
- Patient monitoring
- Fitness monitoring

Industrial Control
- Asset Mgt
- Process Control
- Environmental Energy Mgt

Telecom Services
- M-commerce
- Info Services
- Object Interaction (Internet of Things)

Home Control
- Security
- HVAC
- Lighting Control
- Access Control
- Irrigation

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Low Power Wireless Mesh Standards & Alliances
Industrial Wireless Sensor Networks

Thousands of Industrial Systems Deployed

buildings, pipelines, refineries, data centers, mines, city streets, chemical plants, deserts, trains, steel mills…and more
Pharmaceutical Monitoring

- FDA compliance requires accurate temperature monitoring and logging to avert FDA fines
- Approximately 800 GE ValProbe temperature sensors
Connected Devices in Intelligent Networks

Building Energy Management

Admin → AI Engine

Cooling, Power, IT → Data Center

BMS → Building

MEASURE, MODEL, MANAGE

Conference Sponsors: DUST NETWORKS, Iridium Everywhere, kpn, Telit, Telenor Connexion, TELIT Wireless Solutions
Home Area Networks

Entry points into home
Home Health Care Applications

- Independence for the Physically Challenged and Aging
  - Remote monitoring
  - Provides real-time location capabilities
  - Maintains freedom of mobility

- Chronic Disease Management
  - Better self management
  - Multi device management for multiple chronic diseases
  - Improvement monitoring in professional settings

- Health and Wellness
  - Body-worn sensors for sports and fitness
  - High accuracy monitoring
Source: Morgan Keegan
Payment as a Unifying Service for Intelligent M2M Networks – the Telecommunications Model

Toni Goeller
Vice Chair
IEEE Germany
• Great sensors, great protocols and killer applications are one thing – they need a link missing so far
• Smart Grids, Smart Homes, and Smart Transportation Systems grow together and offer a plethora of new services

Services are provided by many parties – *Examples*:

- Remote property surveillance and alarming
- Remote home control
- Utility load management by controlling home devices and car battery charging/discharging including tariff optimization
- Car-to-car communication

Many services are brokered by a trusted national entity, e.g. a utility or telecom operator.

Existing contractual relationship between trusted entity and individual/enterprise.
• The world if payment develops without a plan

... and many more ...
Number of contractual relationships will reduce willingness to buy new services
• The world as Visa/Masters/PayPal/Apple/Google/Amazon desires it (just put one name in at a time)
The world in the cooperative telecom model
Billions of transactions per day
Not a single broker, competitive relationships
• Extension of the telecom model to service payment
• Established systems to handle billions of real-time transactions per day
• Usable for charging, payment collection, decision making, dispute resolution
Sample use cases of the cooperative payment model

- Time-of-Use tariff optimization as a home management service
- Home monitoring services
- Home profile control and authorization
- Small news or media items without subscription (single article kiosk)
- Peer-to-peer selling on social networks
Advantages for all involved parties

CONSUMERS
- Existing contract
- Existing itemized billing, existing authentication infrastructure
- Privacy: Customer data stays with existing operator
- No need for a credit card or multiple prepaid accounts
- Competitive: Change of operator possible

OPERATORS
- Significant new revenue and profit
- Growth based on a core competency: Identification and real-time mass transaction handling
- Existing billing and payment collection relationship
- Win customers if operator is first to adopt in its region

SERVICE PROVIDERS
- One contract with one operator enables global payment from 3+ billion subscribers
- No need for a credit card or multiple prepaid accounts
- Competitive: Change of contract partner possible

Source: www.toposis.com
Michael Emmert
Managing Director
INSIDE M2M
INSIDE M2M

- founded in February 2004
- located at Garbsen / Hannover
- complete solutions for M2M-Communication
- M2MGate Network
- focus: connection of devices via GPRS
- http://www.inside-m2m.de
Demands

- independence from client’s network
- growing number of devices, which has to be connected
- easy configuration / installation
- Security
- independence from GSM-Providers
- always online
Answers

- connecting devices with GPRS-terminals
- scalable / future-proof
- plug and play
- SSL-encryption / authentification via PKI-structure
- no demand for static IP-addresses
- watchdog
GEZE WebCare 320

- remote control and maintenance
- visualizing and controlling from anywhere
- door status recording facilitates error analysis
- error messages are forwarded automatically
- faster response time

↘↘ better service!
KONICA MINOLTA CS Remote Care

• „Before you even recognise a problem –
• we already know about it. Since the system
• sends us the details immediately, we are
• well-prepared to respond straight away,
• requiring no interaction from your side.
• Service at its best!“
KONICA MINOLTA CS Remote Care
Thank You
&
Questions