Value Creation Network
Internet of Things

Conference

INTERNET OF THINGS ENABLING TECHNOLOGIES
FROM VIRTUAL NETWORKS AND CLOUD COMPUTING TO SMART INTEGRATED COMMUNICATION SYSTEMS

ICT TRANSFORMATION AND BUSINESS MODEL CHALLENGES FOR M2M AND IOT SERVICES"

Associate professor Jan Markendahl,
Royal Institute of Technology, Stockholm, Sweden

02nd of April, 2014,
09:0-17:00, Telenor, Oslo, Norway.

Auditorium Voice, Telenor Expo,
Snarøyveien 30, 1331 Fornebu

www.internet-of-things.no

IoT has become a hot subject - WHY?

- Mobile communication has gone from voice to data services, i.e. broadband access and wireless Internet Access
- The Industry predicts that IoT will be the next ”big thing”
  - Service providers see opportunities to offer new services smart energy/homes/cities
  - Product manufactures may offer services linked to products
  - Mobile operators need new revenues due to declining voice revenues
  - For network manufacturers NO new 5G technology step
    - Hence something else is needed, ”50 Billion connected devices”

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Internet of Things

”Billions of connected devices”

Smart papperskorg till Uppsala

2013-01-14 | Kategori: Miljö | Taggar: Big Belly Solar, Mia Nordström, papp
Uppsala, Uppsala Klimatprotokoll

Big Belly Solar pressar soporna själv och säger till när den måste tömmas. Papperskorgen ska hjälpa Uppsala att bli en klimatsmartare stad.
– Svenskar är bra på källsortering hemma. Men vi måste bli bättre på det på allmän plats, säger Mia Nordström på Vattenfall.

Uppsala kommun har satt upp tuffa mål. Staden ska ta täten när det gä
energieffektivisering och minska sina koldioxidutsläpp med 45 procent
Några av åtgärderna är kanske inte direkt synliga för det mänskliga ög
gröna hyresavtal och hållbara varutransporter. Men det blir det ändring
ska Uppsala bli bäst på källsortering med smarta papperskorgar.

13 MARCH, 1999
NEWS

A refrigerator that “thinks” – intelligent refrigerator will simplify homes

Some issues for IoT services

- What needs are addressed?
- Who will sell the smart devices?
- Who will provide services?
- Who will make money? – and How?

- When will it take off?
- What will make it happen?
- What kind of applications will be first?

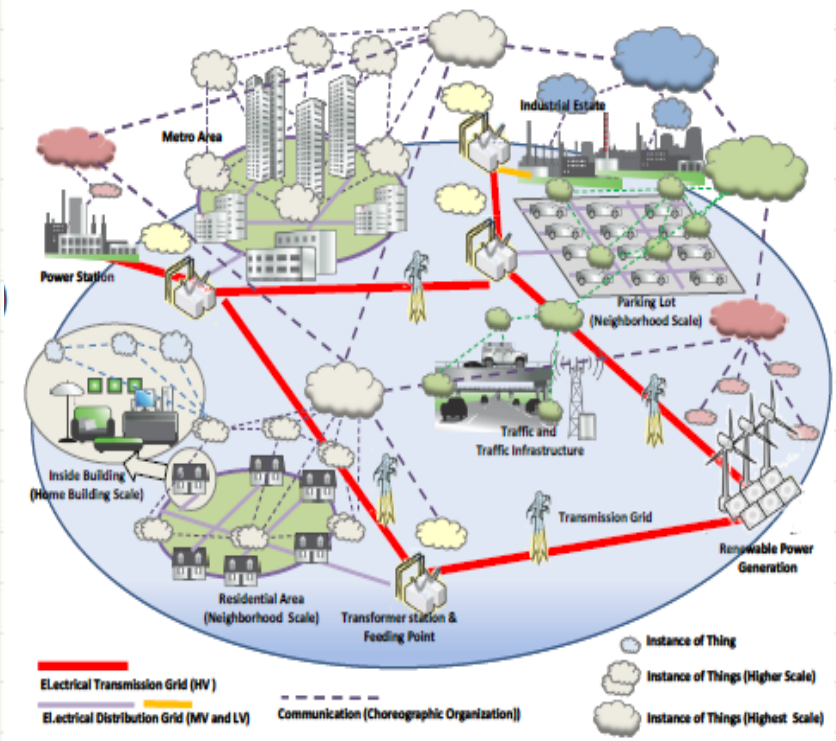
Remember these questions

Research questions

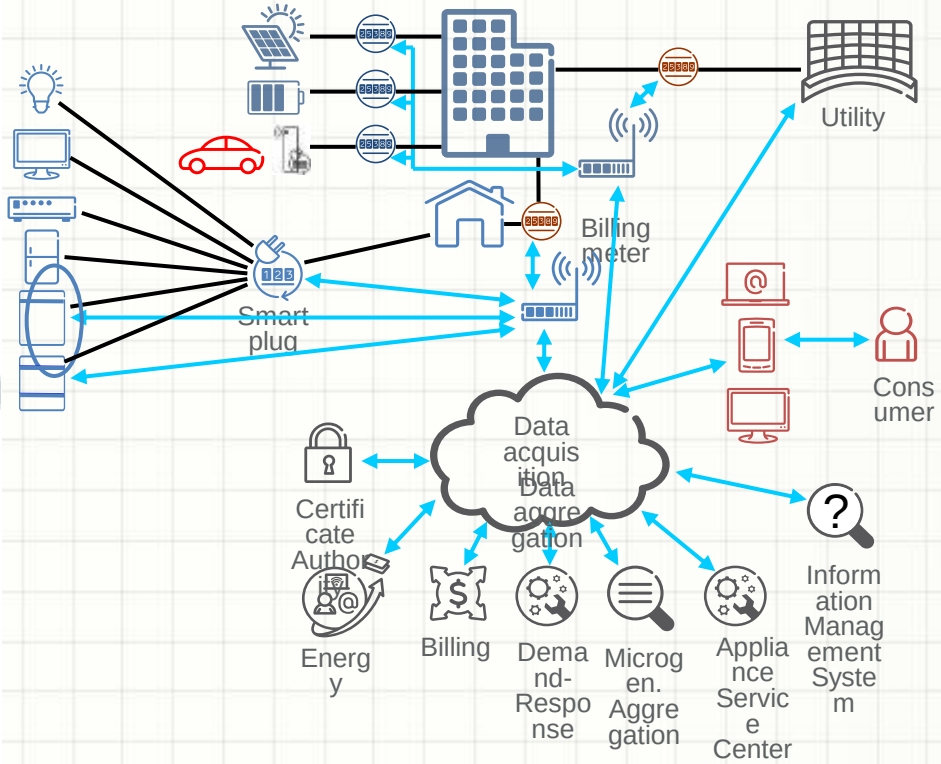
- What kind of values can be identified for different IoT services?
- Can we identify drivers and barriers for adoption of IoT services?
- How is the value network organized ?
  - Which roles are taken by different actors?
  - What is the role of operators in the service delivery?

Many actors focus on technology

”Business modelling of mass data throughputs”



Smart grid: Service enablement



What we are doing

- Analysis of successful and unsuccessful cases
  - Primary and secondary data collection
  - KTH and SSE have 10 thesis workers at Ericsson
- Discussions and workshops with industry and users
  - Two one day workshops about smart energy
    - Stockholm Nov 2011, Berlin October 2012 (20 participants each)
  - Three half day workshops within the Royal Seaport project
    - Acreo, Ericsson, Telia, Sics, Stockholm City 2012-2013
  - Three half day workshops with major Swedish companies
    - ABB, Assa-Abloy, Electrolux, Ericsson, Sandvik 2012-2013

Comparison of cases

Business model aspect	Access control & time reporting	e-home care service	Smart city case	Smart house case	Mobile parking payments
End user value	Large	Same	Small	Small	Large
Cost savings	Large	Large	Unclear	Small	Large
Control of customer interface	Home care authority	Home care authority	ISPs, Utilities	Unclear	Payment provider
Control of the service platform	Solution provider home care authority	Home care authority	Unclear	Unclear	Payment provider

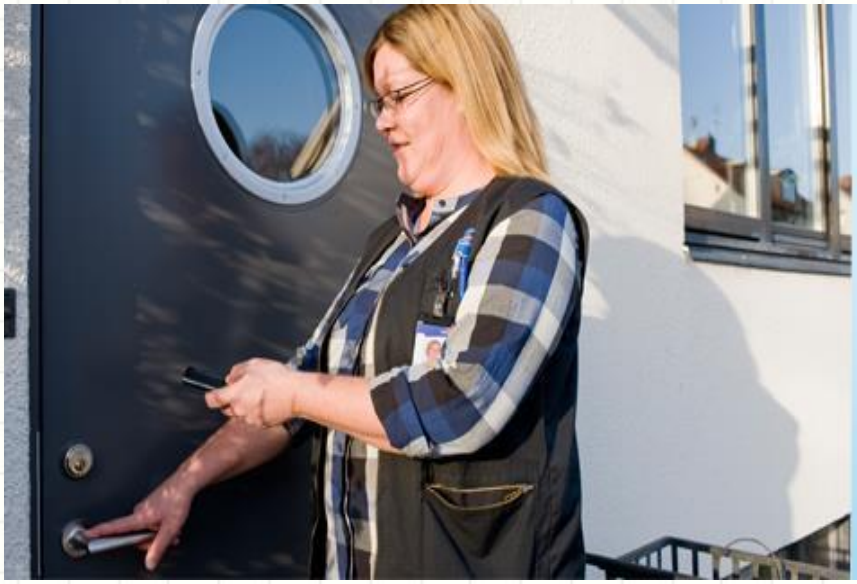
Case: Mobile phone keys and time reporting
Home care services

FEAUTURES

- Digital key management using mobile phones with bluetooth technology
- Time reporting

VALUES

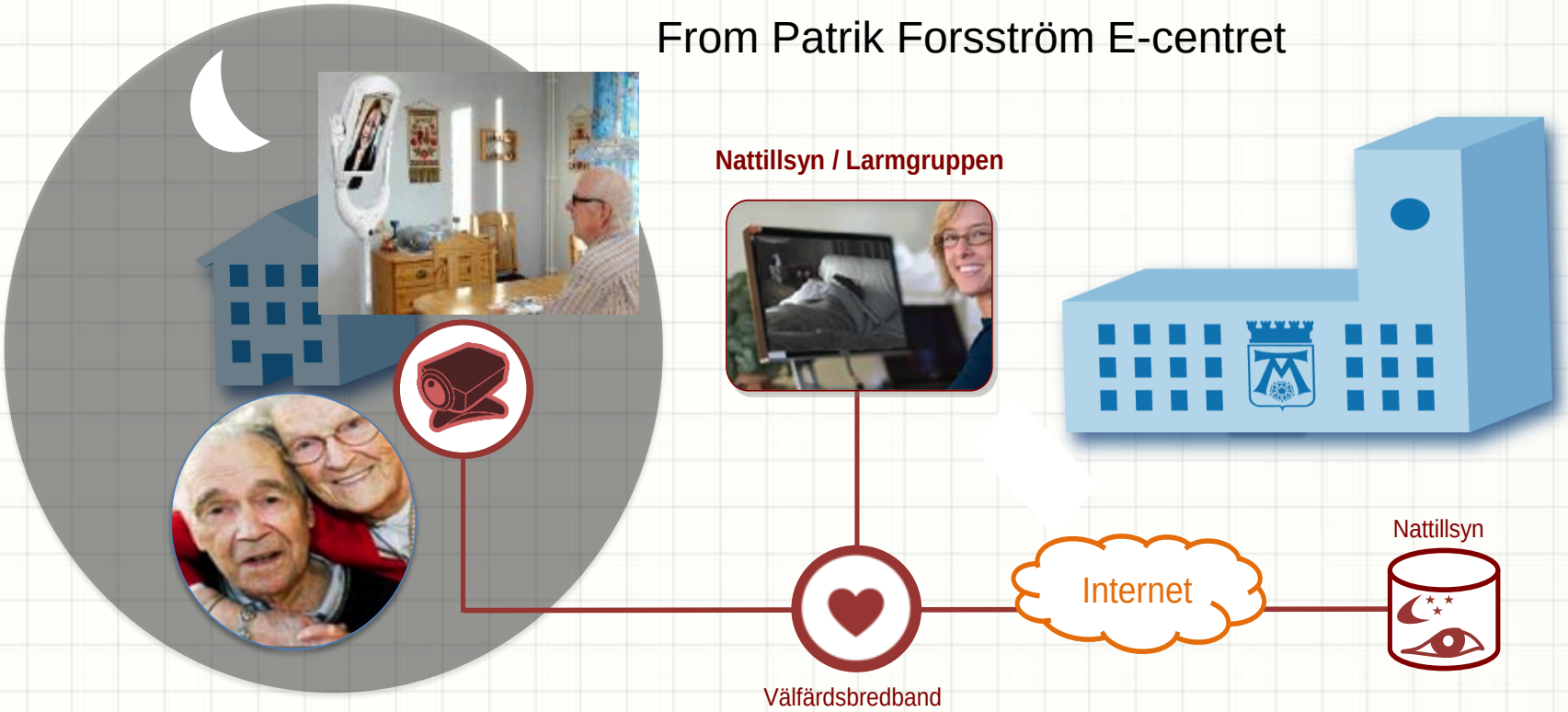
- Big time savings
- Control of own time, less stress
- Other values



Case: E-home care in Västerås

One part of a service in one sector

From Patrik Forsström E-centret



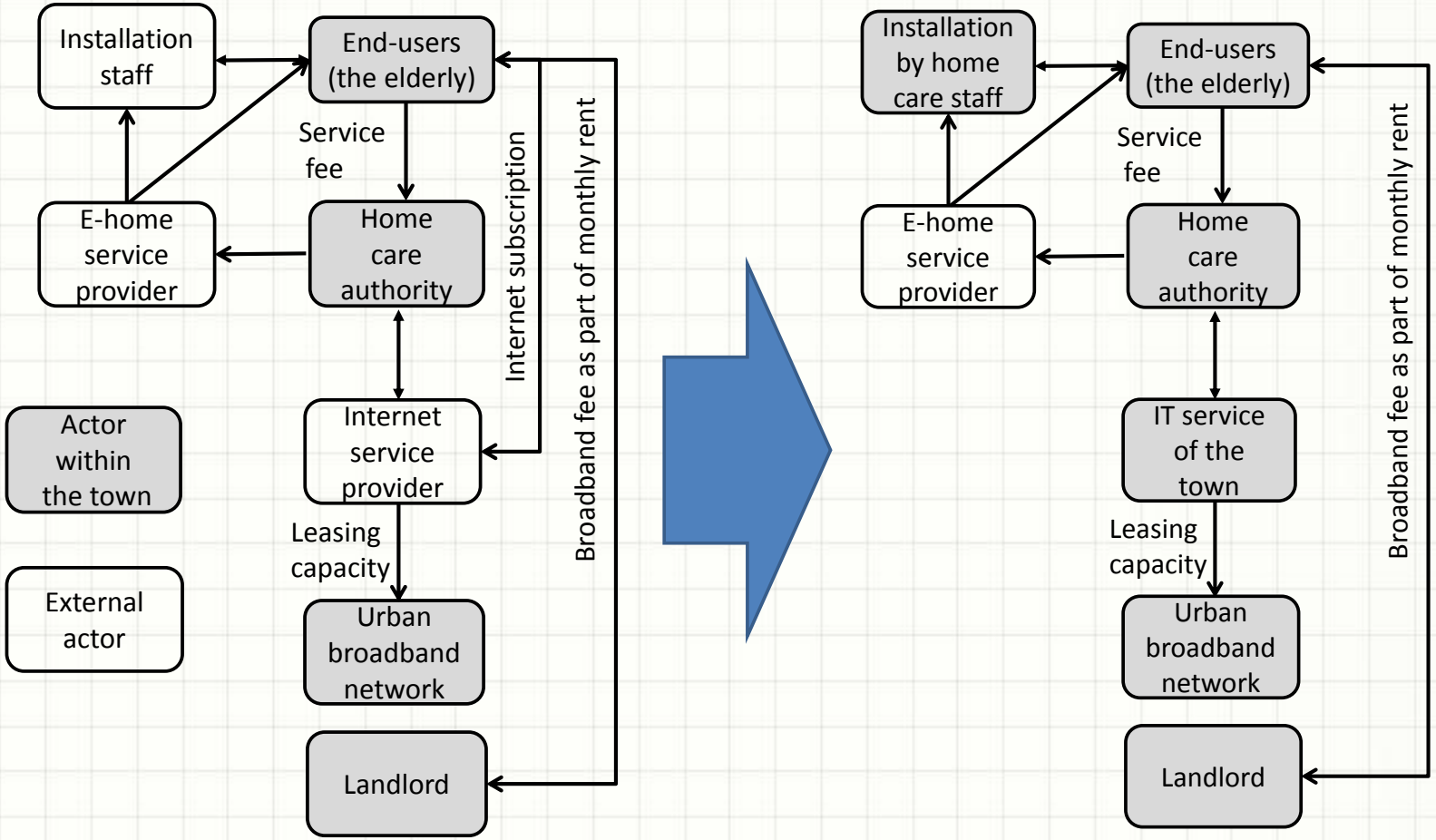
E-home care – big savings

Savings for 300 home care customers

- One physical visit per day is replaced by e-home care
- 20 MSEK per year

- Fallstudie beräknat på 300 e-hemtjänstanvändare av digital nattillsyn
- …vilket ger ca. 300 färre hembesök per dag
- …och ca. 30% av besöken sker med bil = ca. 100st
- Totalt kan ca 200 km bilresor per dag tas bort vilket förbrukar 15 ton CO_2 årligen.
- Kvoten besparing/kostnad är 4 till 10 gånger

Case: E-home care – Actors & roles



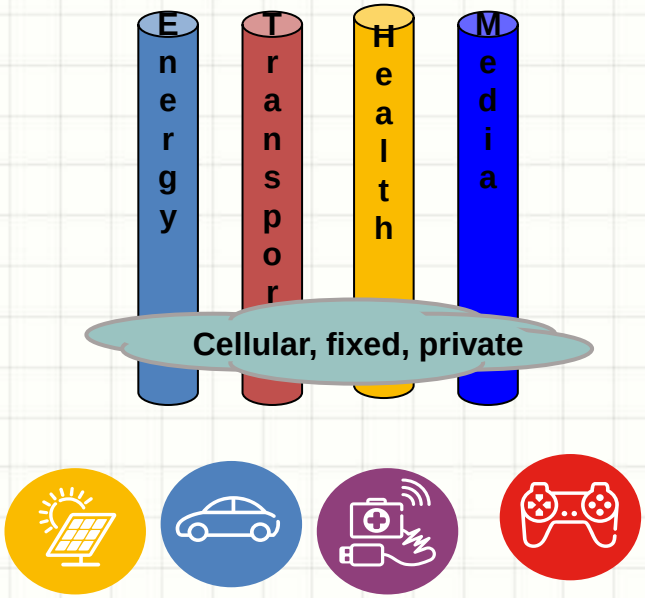
Case: Smart city project Royal Seaport ”Norra Djurgårdsstaden”

”Smart ICT for living and working in Norra Djurgårdsstaden”

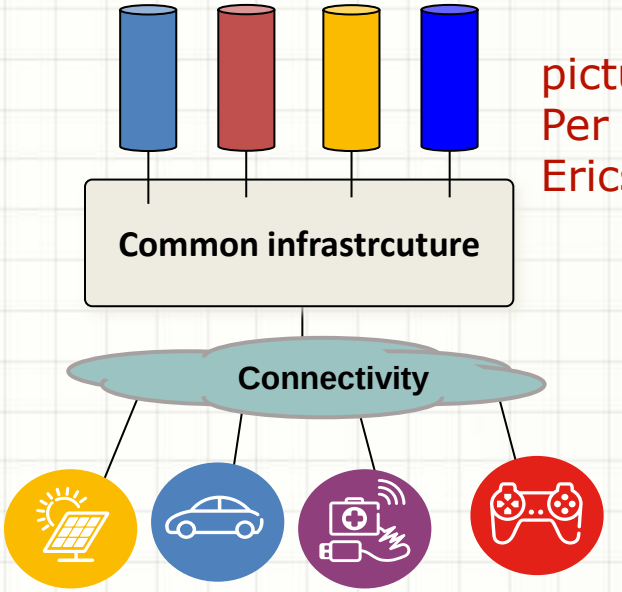
Case: Smart city project Royal Seaport

"Existing network structures "

Current solutions – stove pipes



Generic services
- common requirements for verticals

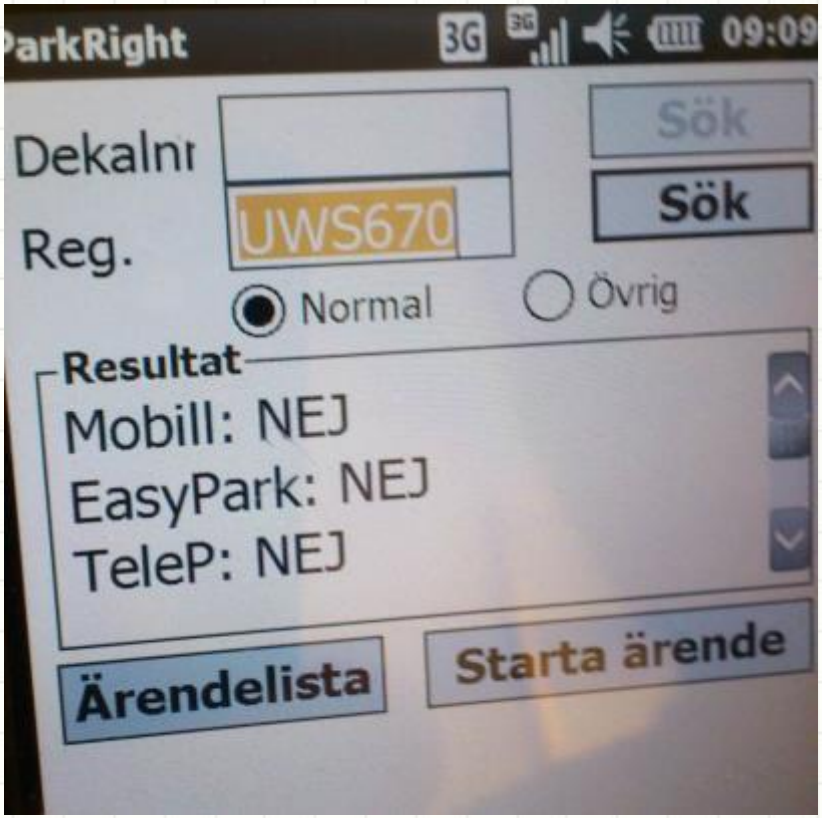


pictures by
Per Ljungberg,
Ericsson

"The structure is dominated by "verticals" and in many cases very apparent protection of these silo structures…."

Case: Using mobile phone for parking tickets

Many competing solutions and providers for the same type of servic



User interface for handheld device used by parking control staff

Comparison of cases

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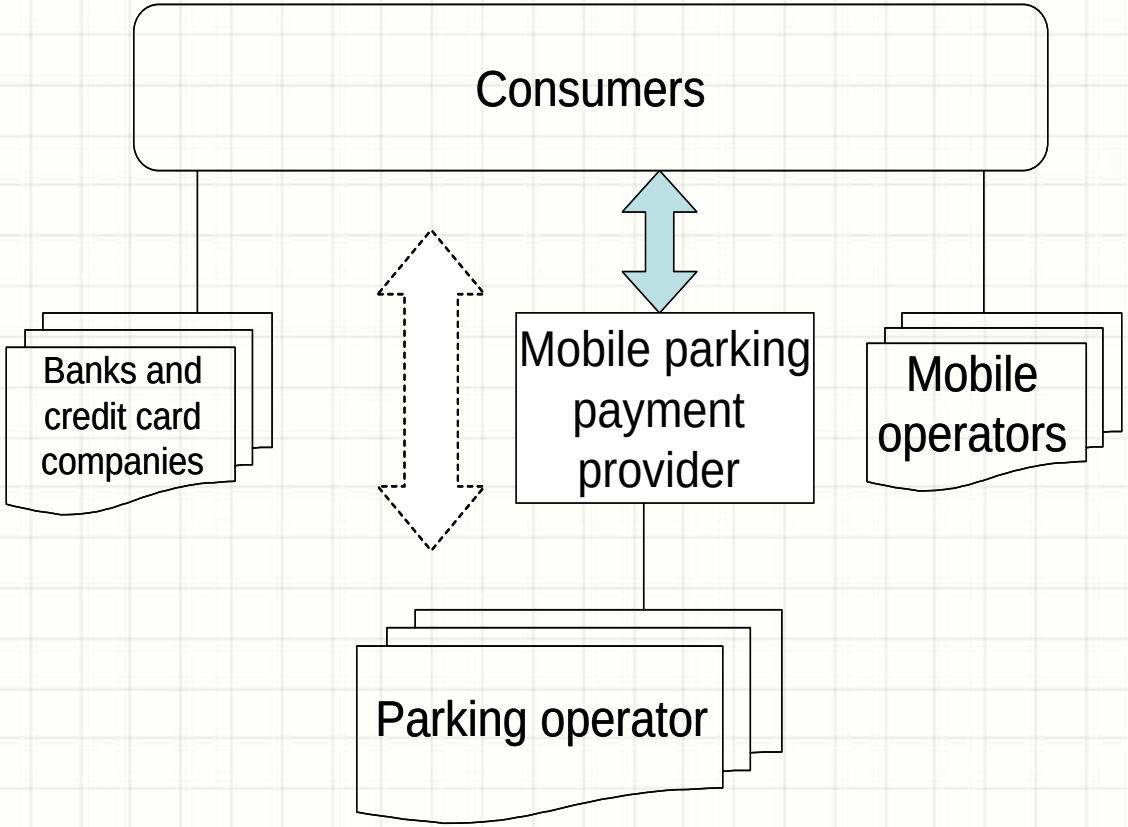
Issues for mobile operators

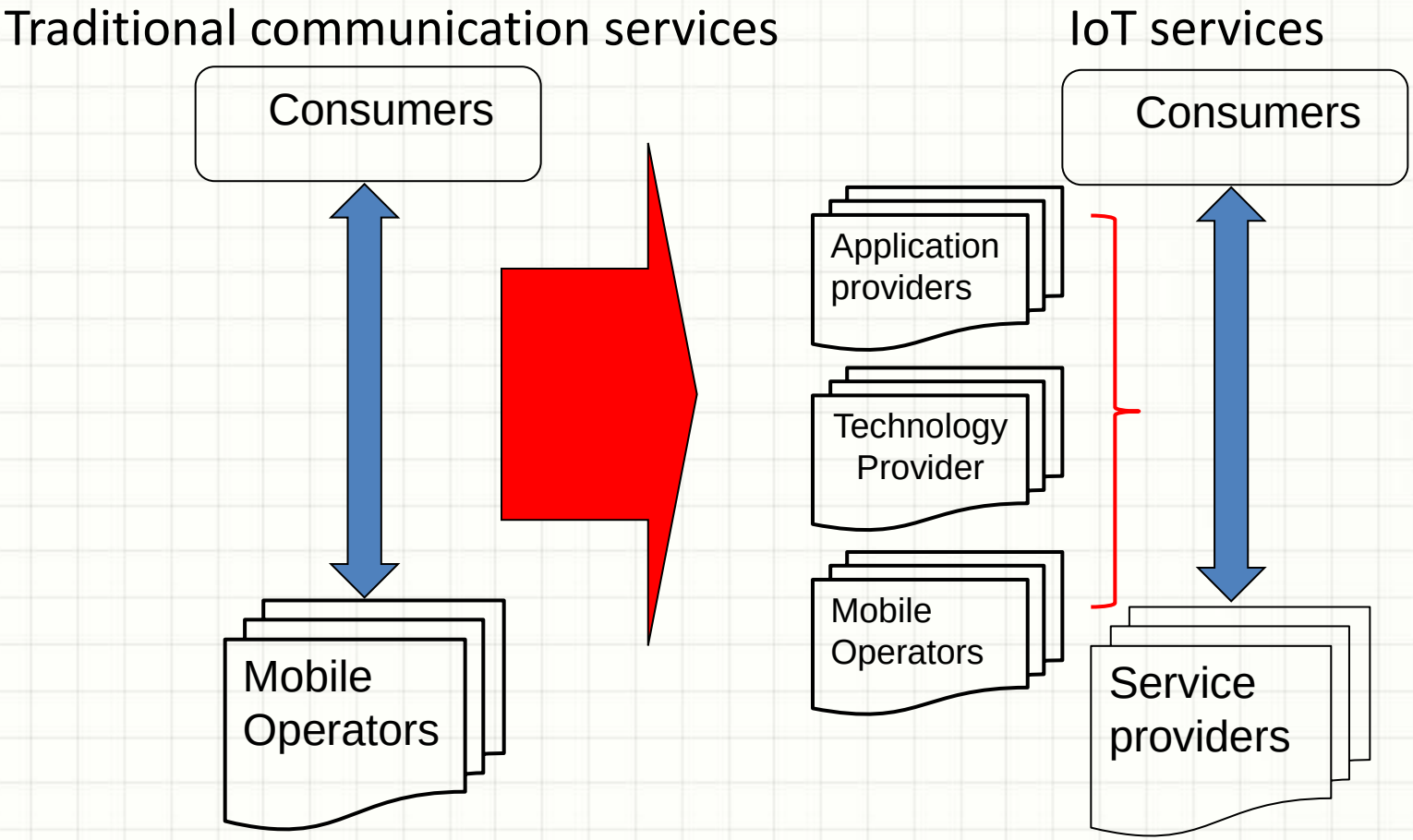
- Ability to provide added value
- To have knowledge about the service
- Do all M2M services require operator involvment?
- Spectrum allocation for ”special networks”
- Allocation of Network codes (PLMN) to ”others”
- To be ”involved”

Case: Using mobile phone for parking tickets

Actor map for parking subscriptions



Do mobile operators and technology providers need to change the business perspective?



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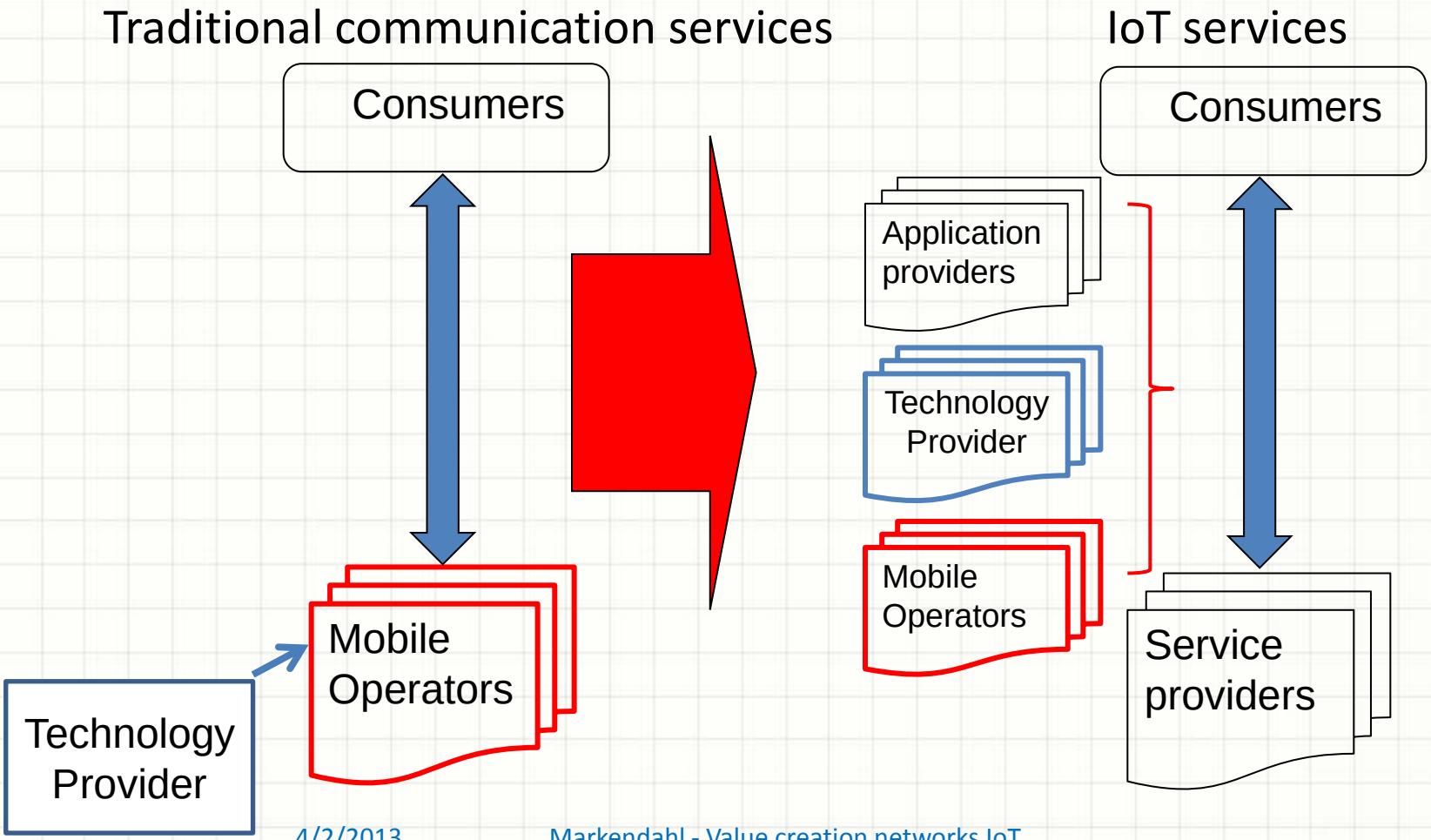
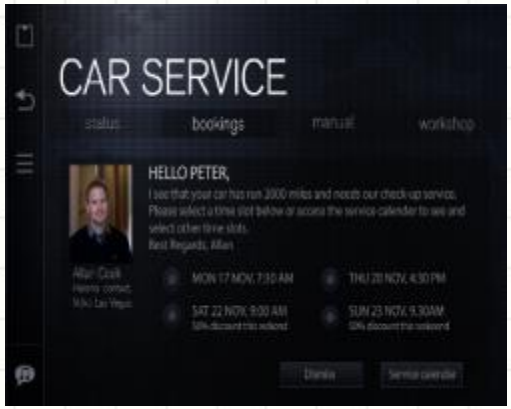


Interesting Ericsson case:
Apps on the Connected Vehicle cloud



Connected Service Booking

Car reports status to the cloud

Repair shop, dealer and OEM create a message to the driver

The driver can select a time and place for a service of his/her car

Insurance as you drive

Car reports status and driver behavior to the cloud

With the driver's consent, driver DNA is exposed to insurance company

The driver can view his current discount level on the insurance

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AT&T Launches "Software as a service" solution with Ericsson

FierceMobile Healthcare

NEWS TOPICS ANALYSIS FEATU

Topics: Hardware & Devices | Health Information Technology | Networks & Infrastructure

AT&T, Ericsson launch cloud-based, remo patient monitoring solution

December 10, 2012 | By Greg Slabodkin

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AT&T has launched new cloud-based remote patient monitoring tec delivered as software-as-a-service from Ericsson, *HealthTechZone* reported. Part of AT&T's ForHealth suite of RPM services, the SaaS designed to help doctors monitor their patients over video on a table the Internet, providing coaching, reminders and health education to manage chronic diseases remotely without requiring a return hospit

One of the benefits of AT&T RPM SaaS is that patients can use Blu devices to check their vitals daily, and send the data to a cloud-base healthcare providers can access through a secure portal. In additio scheduled appointments, physicians can communicate with their pa video.

Hospitals and other healthcare institutions moving data into the clou several trends to watch for health IT in 2013, according to AT&T. An

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The House Call Reinvented: Video Creates Personal Doctor-Patient Connectio Via Cloud Based Remote Patient Monitoring Service

AT&T Unveils RPM Software-as-a-Service, Enhanced by AT&T Foundry®

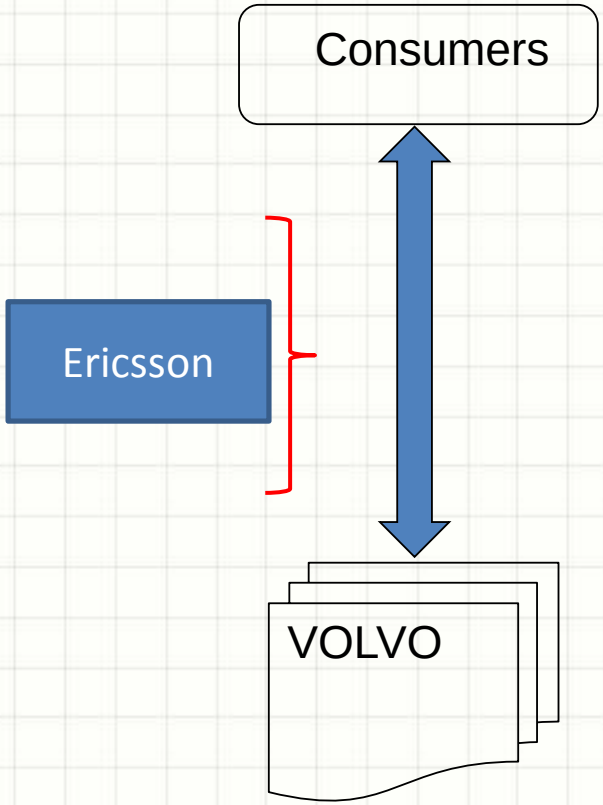
Dallas, Texas, December 04, 2012

ShareThis

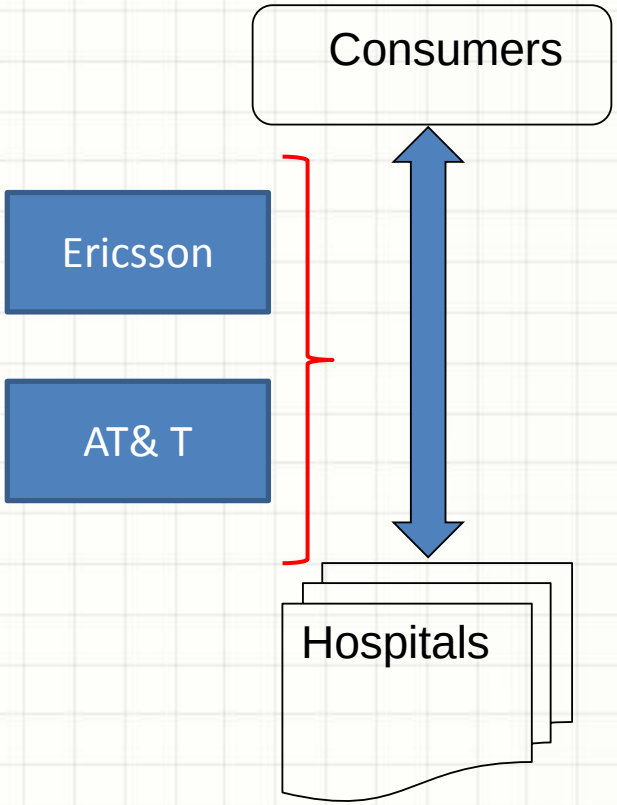
Today's patient-centered model puts the responsibility on healthcare providers to understand more about their patients outside of the hospital. Remote patient monitoring (RPM) technology is reinventin the age-old notion of the house call. Now, that house call can happen over video on a wirelessly connected tablet.

These cases are examples of ”new” thinking

Connected vehicle cloud



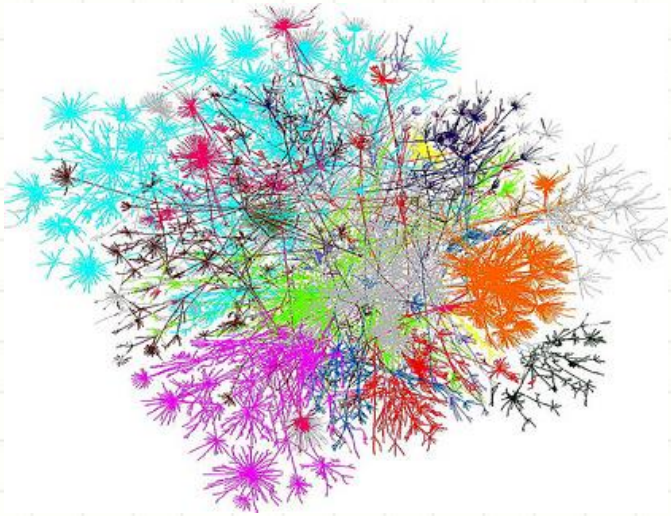
Remote patient monitoring



Summary

- Many IoT initiatives are driven by technology providers
  - It is proven that a system can be built and it works
  - Often low end-user value or difficult to measure
  - Unclear what actors that will be involved in service provisioning - and how
- Some services cases are successful or promising
  - Clear and high value can be identified
  - Roles of involved actor are clear
- For telecom companies
  - In many cases they are not involved are withdraw
  - Some promisining cases exist when new roles have been taken

Thank You!



INTERNET OF THINGS:
INTERNET OF ANYTHING, ANYTIME, ANYWHERE

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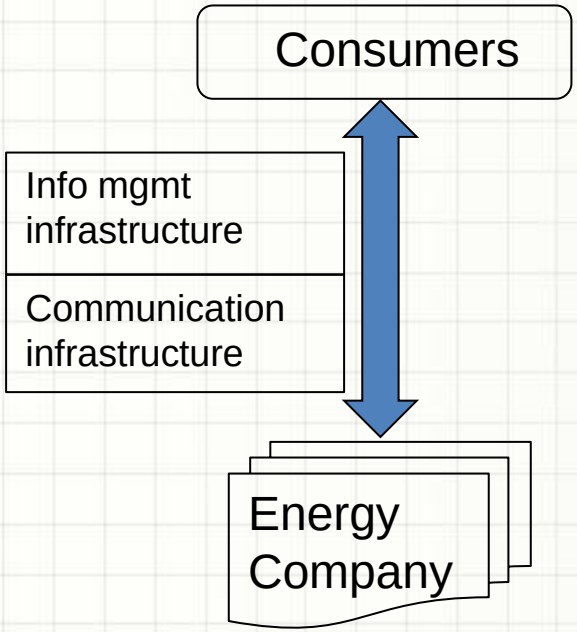
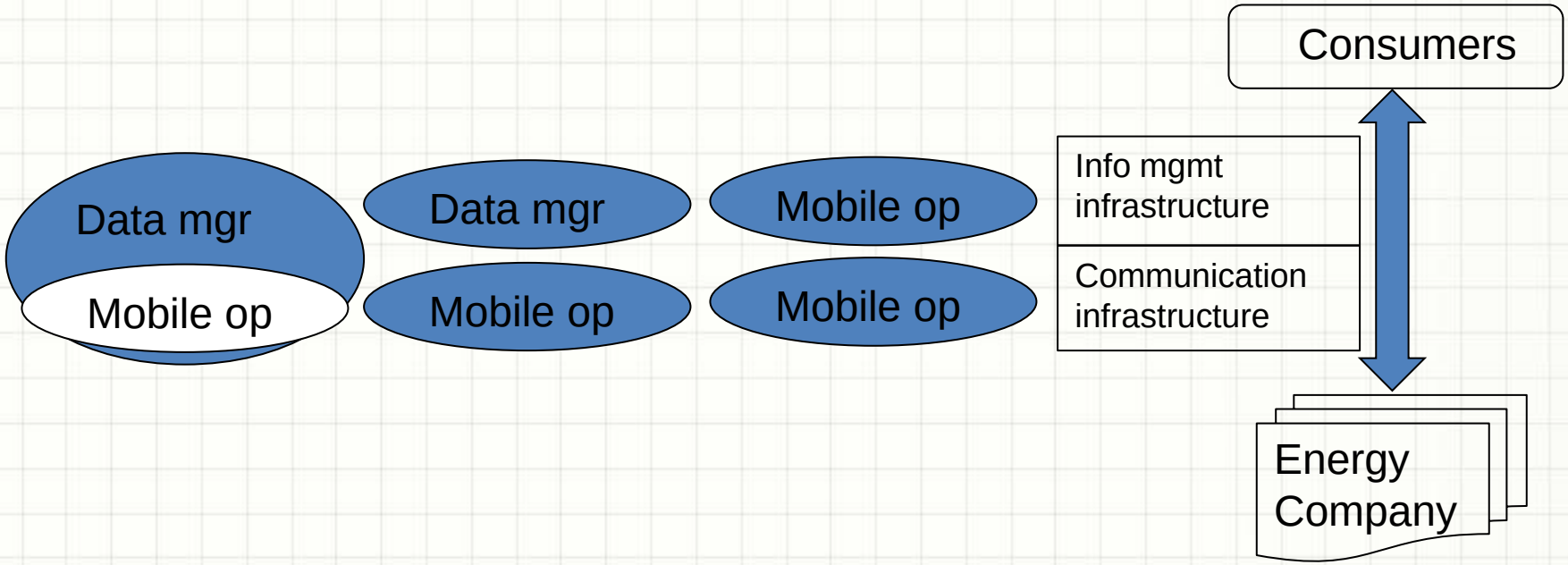
Metering data – some options



Metering data – some options



Mobile operator view on the mobile content business: WHAT YEAR??

Step 1- Manage the end-user interface in TeliaSonera's mobile channels

- Take ownership of the mobile interface using customer-friendly Clients and Softkeys to our services

Analysis toolbox, theoretical framework

- ARA model (Håkansson and Snehota, 1995), (Ford, et al., 2007) and the Activity system perspective (Zott & Amit, 2010)
  - Which activities and actors are included in the value network
  - How the roles are distributed among actors,
  - The interaction patterns between actors

Content,
Structure,
Governance

- Value proposition /cost issues (Chesbrough & Rosenbloom, 2002)
  - For the value proposition the key aspect is the end-user value
  - For cost-structure and profit potential we focus on cost savings
- Analysis of cooperation and competition (Bengtsson, Kock, 2010).

Case: Mobile phone keys and time reporting
More on actors