

Filling the Gap between Internet of Things & Internet of Services

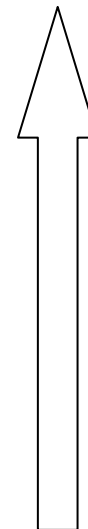
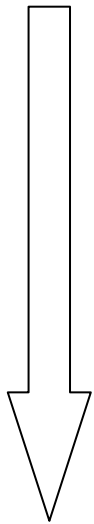


NoE proposal, ICT PSP on RFID,
12th March 2007

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Premises

- Future Internet is an ecosystem of self-organising objects
- Innovation is technology-driven



Needs:

- Users
- Business needs
- Applications

- The **whole lifecycle** (service, maintenance) is important In Internet of Things: service creates more value
- Pervasiveness ask complete Product Lifecycle Management
- Research enables the work with RFID between **any** companies **along** the complete life cycle
- IoT propagates events
- Service along the lifecycle **changes stakeholders**, roles, rights, data-ownerships

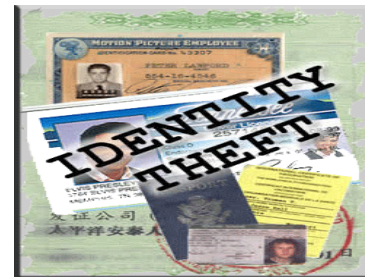
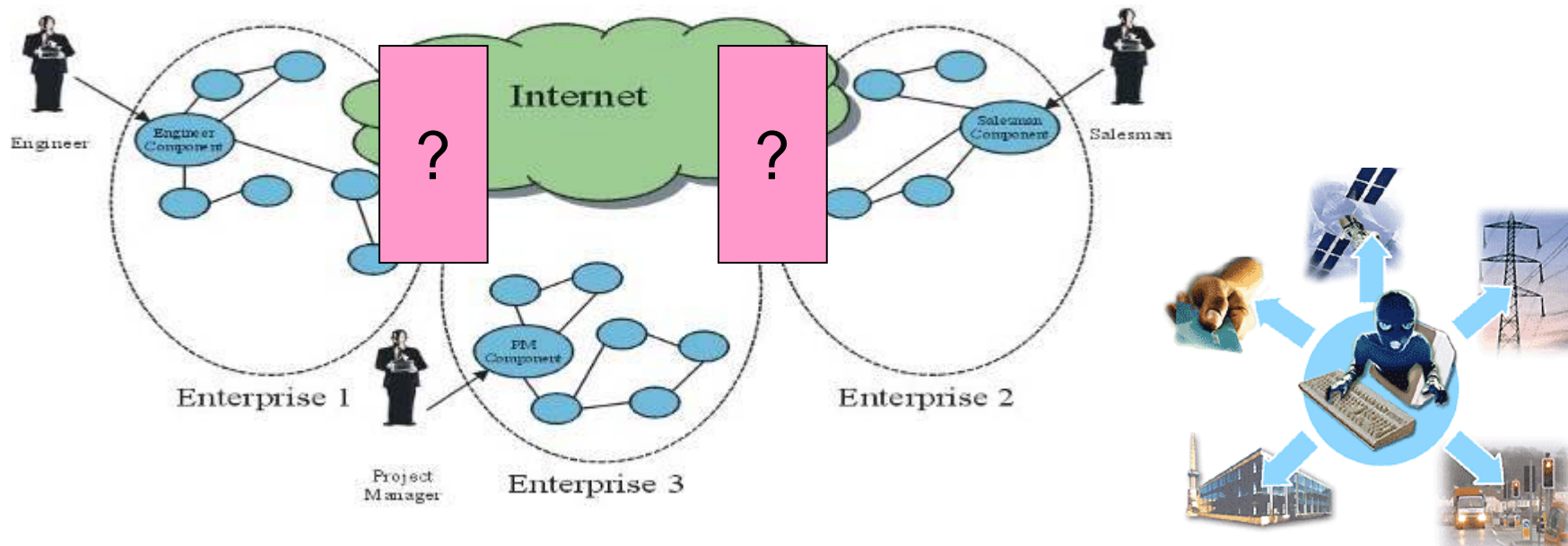


Software & Services Priorities for WP 2009-10, Workshop, March 4, 2008

- 3 IoS pillars require Software Service **lifecycle** management
 - Semantically enriched multimedia content
 - Flexible SoA
 - RFID-enabled Internet of Things
- IoT + IoS require tools for Process and Services Management
 - SLA violations are detected after they occur
 - Lack of QoS predictability at run-time
 - Run-time governance of dynamic composition of elementary services
- RFID-enabled “**things**” accompanied by **knowledge** (software from ERP), become a **global integrated service**
- ... to reflect a wide-ranging business, economic & social goals.

Complexity and Uncertainty in IoS

ERP systems designed in the past doesn't suit extended IoS with new needs.
ERP is embedding the **tacit knowledge**, to transfer
... but the old one, where design was done at "partial vision" by many experts
System of System integration = Complexity + Vulnerability + Challenges



Scaling up middleware towards IoT

- The RFID vs. IOT trend is:



- readers becomes mobile devices

- Changing address, NAT, offline nodes, unreliable connections
- Discovery may not be sufficient (usually based on low level broadcast, ideal for local network)



- applications require business logic inside or near the reader

- Autonomous readers need application logic, not only filtering (e.g. mobile phones, PDAs, etc)
- Allow uploading and configuring “tasks”, not just rules



- application tasks are driven by remote events

- In the EPC mw operations are triggered by who reads the tags (e.g. tag read -> ONS query -> request information owner)
- Allow applications to remotely track tags



- the middleware should handle more than tag IDs

- Tag with memory, NFC communications (exchange of resources), remote sensors or controllers?

- Product Lifecycle Management sees several stakeholders

- Thing + Knowledge (embedded in ERP) to transfer to the next stage



The gap between IoT and IoS

- More added value is generated during the extra-wall “lifelong service” stage



Production
 6months, +3K

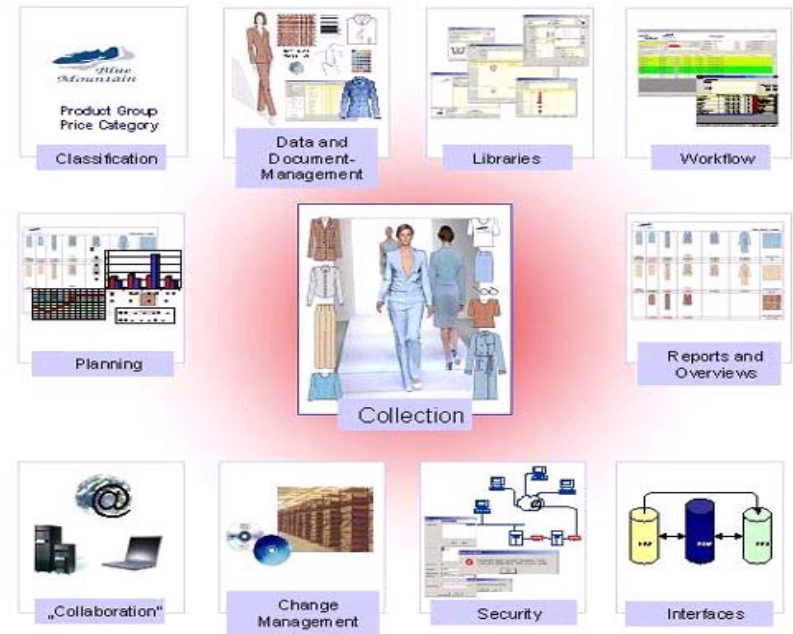
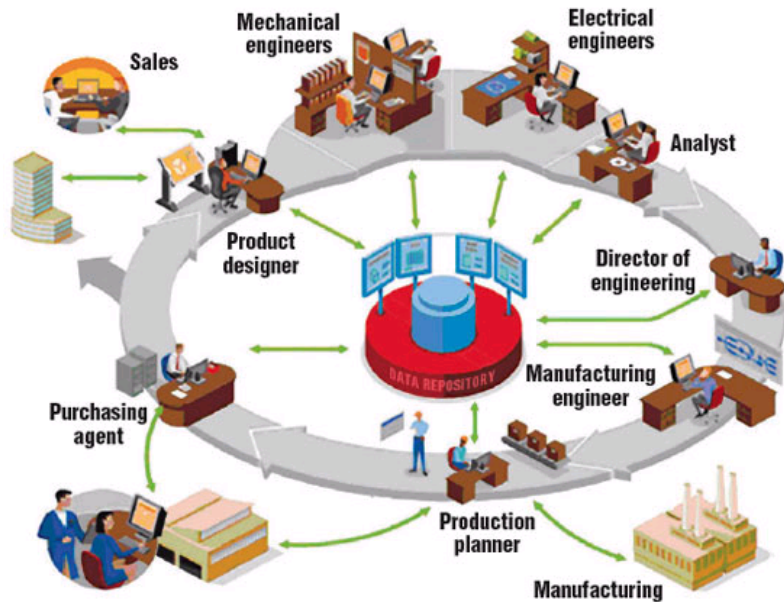


Selling
 3months, +2K



Lifelong Service
 >10 years, value added is > +15K

- but PLM was developed for intra-enterprise uses to manage “things”
- There is the gap between IoT and IoS to fill: a **federating platform** proposed



Filling the gap between IoT and IoS

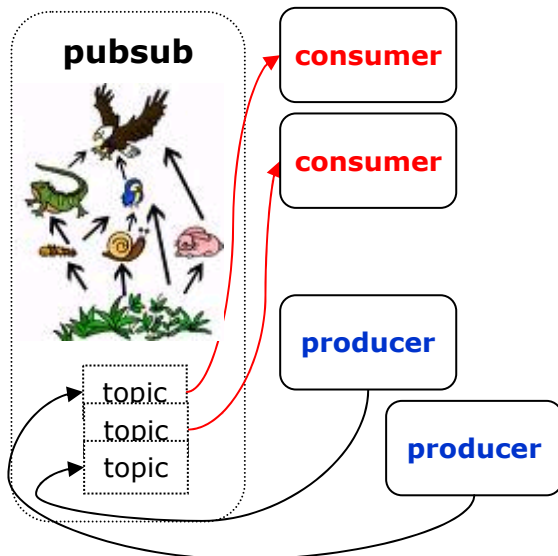
- There **are** immediate barriers to overcome
 - Cost (false problem)
 - Fragmentation (many stakes, technologies, standards, ...)
 - Lack of inter-operability
- ISMB has established a **vendor-neutral** fast prototyping Lab.,
- but **large pan-EU N.o.E.** is needed (to gather best experiences)
- We propose Joint Programme Actions (for JPA)
 - Best practice search, KB creation + strengthening
 - Expert's directory + lookup service (with ranking/reputation)
 - Common Testing and Inter-operability Environments
 - Deployment + Simulation Platform

IoT+IoS real life cases

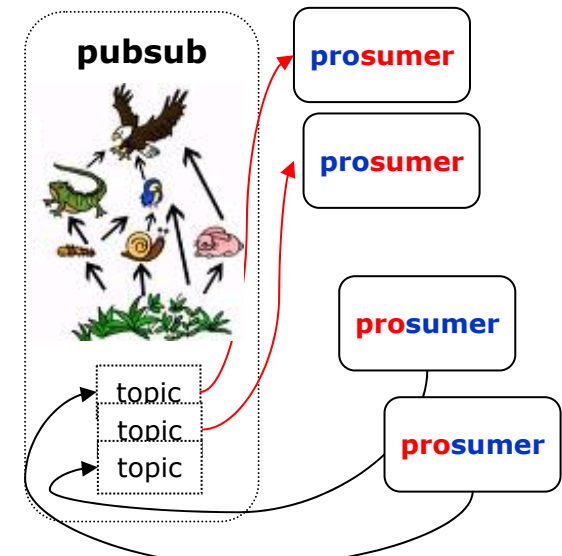
- Demographic changes drive to personalized care: u-Health



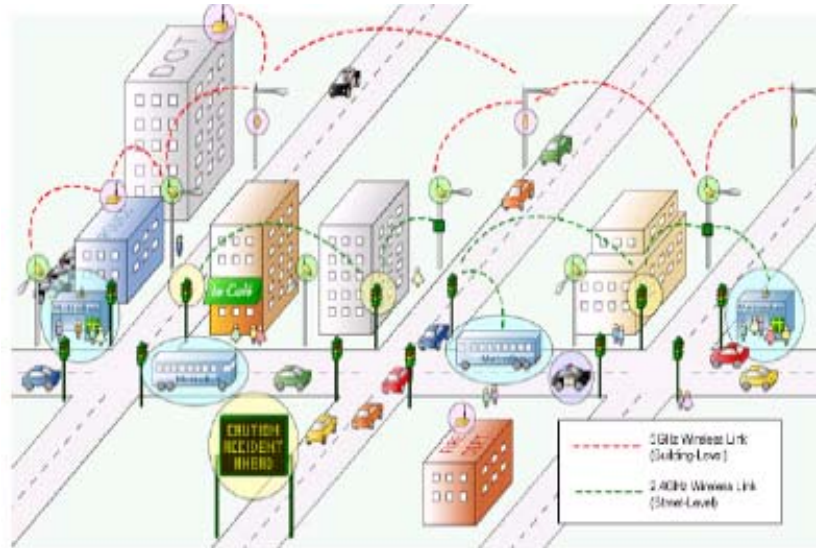
- Global Liberalized Market drives to a system of semantic GRIDs: d-Energy



behind...



Further details - contact us



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