The Future Internet

SAP’s Vision in an Enterprise Context

Thomas Michael Bohnert
Coordinator Future Internet Research
SAP Research CEC Zurich

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Trend - Services are Driving Economies

Gross value added in Germany

1991
- Retail, hotel/restaurant industry, transportation: 17.9%
- Finance, rental and corporate services: 23.3%
- Construction: 6%
- Agriculture, forestry, fishery: 1.4%
- Manufacturing industry (not including construction): 30.6%
- Public and private service providers: 20.8%

2005
- Retail, hotel/restaurant industry, transportation: 18.0%
- Finance, rental and corporate services: 29.1%
- Construction: 3.9%
- Manufacturing industry (not including construction): 25.8%
- Agriculture, forestry, fishery: 0.9%
- Public and private service providers: 22.3%

Source: German Federal Statistical Office, 2006
Trend - Global Business Networks
IMF, World Economic Update – An update of the key IMF projections, November 2008

Trend
– Increasing Risks and Risk Potentials

German DAX (stock index)
Main business applications to drive ICT innovation:
- Web based services (70%)
- Business Intelligence (50%)
- Modeling and Design (50%)

Major consumer markets developments:
- Access to information (65%)
- Social networking (55%)
- Online administration (50%)
Concept for a Future Internet - A Holistic Framework

Internet of Things

Network of the Future

Internet of Services

Cloud Computing

Source: X-ETP Vision
The Internet of Things
- Value Proposition

**High Resolution Management**

**New dimension of insight**

- High frequency of data collection
- High density of data points
- Near real-time data
- Low cost of data collection
- Partial evaluation at the point of action – local decisions

**Next Generation Business Applications**

**Taking SOA to the next level**

- Smart Items offer their capabilities as services / mash-ups
- Distributed business logic reaching down to the “physical edges”
- Things become active participants in business processes
The Internet of Things
- A Reality in the Making
The Internet of Services
- Foundation of Web-based Service Economies

**NETWORK PARTICIPANTS**

- **GOVERNMENT**
  - eGovernment, eEnergy, eHealth, Security

- **BUSINESS/SCIENCE**
  - Cluster / SME
  - New Services & Business Models

- **CITIZEN/CONSUMER/EMPLOYEE**
  - “Digital Lifestyle”, New Media, Communities

**OPEN SERVICE DELIVERY PLATFORM**

**NETWORK ENABLER AND FOUNDATION**

- **SECURE BROADBAND INFRASTRUCTURE**
- **INTERNET of THINGS**
- Cloud Computing
The Internet of Services - Diversified Partnerships in On-Demand World

**Service Gateway**
- Put services on global highway
- Single service, choice of B2B standards
- Managed adaptation
- Secure, reliable, efficient access - SLAs

**Service Aggregator**
- Repurpose and rebrand – value-added resellers, merchant service providers
- Demand-driven packaging
- Re-factoring based on market demand

**Service Broker**
- Marketplaces: service publication, discovery, ordering, rewards etc
- Managed service delivery
- Competitive repricing (e.g. advertisers, marketers)

**Service Channel**
- Services at the edge
- Widgets, mash-ups
- Integrated Web authoring
- Mobile, multi-media, voice
- Personalization, context sensitive, service contacts you
The Internet of Services - Unified Service Description Language (USDL)

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| Organisational           |                   |                 |             |
| Target                   |                   |                 |             |
| Consumers                |                   |                 |             |
| Business Owner           |                   |                 |             |
| Processes Supported      |                   |                 |             |

| Technical                |                   |                 |             |
| Service Interface        |                   |                 |             |
| Service Coupling         |                   |                 |             |
| Service Statelessness    |                   |                 |             |

| Operations               |                   |                 |             |
| Inputs                   |                   |                 |             |
| Outputs                  |                   |                 |             |
| Channels                 |                   |                 |             |

| Availability & Pricing   |                   |                 |             |
| Pricing Category         |                   |                 |             |
| Temporal Attributes      |                   |                 |             |
| Locative Attributes      |                   |                 |             |

| Security                 |                   |                 |             |
| Access Control Policies  |                   |                 |             |
| Authentication Credentials |                 |                 |             |

| Consumer View            |                   |                 |             |
| Phases                   |                   |                 |             |
| Milestones               |                   |                 |             |
| Interactions             |                   |                 |             |

| Legal                    |                   |                 |             |
| Terms of Use             |                   |                 |             |
| Clauses                  |                   |                 |             |

Perspectives can be extended, or new perspectives added to provide comprehensive service descriptions.
A Public-Private Partnership (PPP) for the Future Internet