

Future of services and cloud computing:

What is in store for the users?
What impact on the Internet?

SYSTEMATIC THOUGHT LEADERSHIP FOR INNOVATIVE BUSINESS



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Agenda



SAP

- **Future Internet: The Vision**
- **Internet of Services**
- **Cloud Computing**

Towards the Future of the Internet



Web-Based Service Industry

USA



Europe



Rest of World



Future Internet

Core Business Services

Including:

- Trust
- Identity Management

- Dependability
- Reliability

- Scaleability
-

Global Service Delivery Platform

Core Internet Infrastructure Services

Internet of Things



Network Convergence



Devices and Components

Internet of Services

Future Network Infrastructure

...the Internet of Services is...

- A world where the primary good being traded are services
- A vision to apply all the elements of industrial physical good design, production and distribution to the realm of services
- An infrastructure encapsulating the necessary business processes and generic functions required for a mostly service based economy

Business

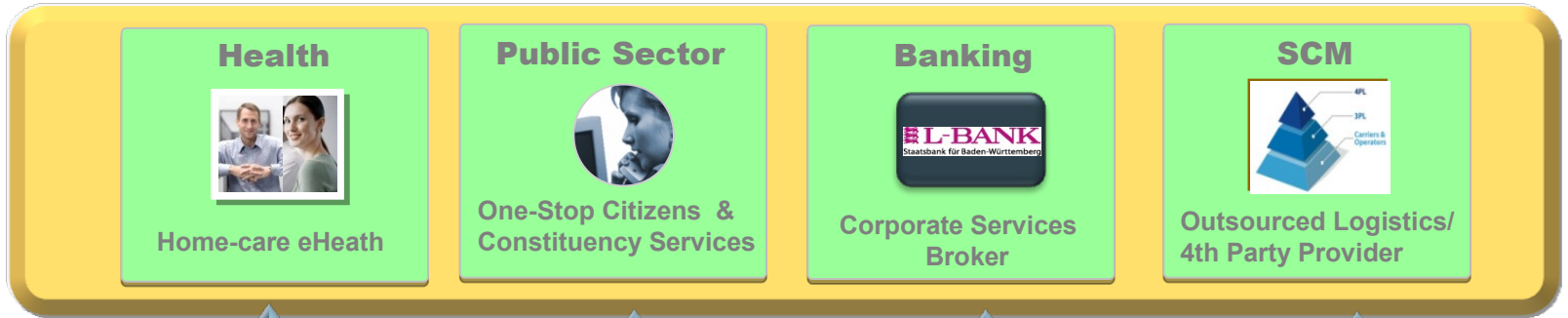
- Service outsourcing – \$1 billion per year per F1000 company on third party services*
- Globalization of supply/demand biggest trend in service industries
- SaaS growth outpacing expectations*:
 - \$6.3b in '06
 - \$19.3b in '11



Internet of Services Enabler through Global Service Delivery Framework

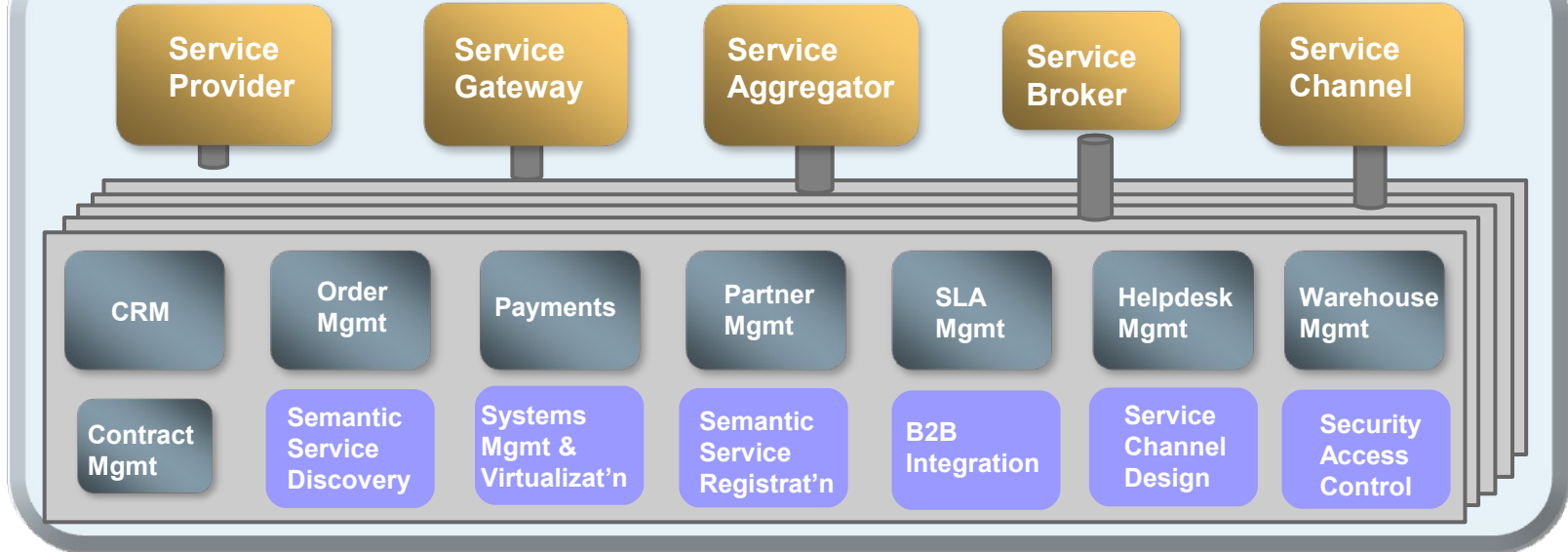


Target industry Ios apps.



Enterprise SOA 2.0

Global Service Delivery Framework



Future Internet Infrastructure

Cloud/Grid Computing, IT Virtualization Middleware Network convergence Internet of Things

Cloud Computing



Application Clouds

(Software as a Service)

Mega Services

Targeted Cloud applications

facebook



Development Clouds

(Platforms as a Service)



Open source software Application Servers

Programming environments



Google App Engine

Azure Services Platform



Hardware Clouds

(Infrastructure as a Service)

Grid Computing

Virtualization



Projected Future Development

Provider Proliferation	ISV Adoption	End-User Adoption	Internet of Services
<ul style="list-style-type: none">■ expect additional providers alongside U.S. players■ questions regarding integration of data and applications in the existing infrastructure■ Data-integrity and development of a more flexible cloud architecture	<ul style="list-style-type: none">■ New ISV ecosystem form will emerge in the cloud, fuelled by developers with no geographical limitations■ Engineering effort for existing software stacks may take several years of effort for existing complex stacks	<ul style="list-style-type: none">■ Uptake of cloud services by end-users fairly uniform■ Significant differences within the adoption by enterprises■ Current usage in Europe lags behind the U.S. and Asia/Pacific (Gartner).	<ul style="list-style-type: none">■ Existing business service providers will tend to enter the space■ Delivery of bundled offerings of Software-as-a-Service in the cloud and full outsourcing services

...for Europe ...

- Cloud Computing dominated by US vendors
- Importance of clouds similar to that of road and electricity grids
- Uptake by developers somewhat faster in the US, dramatically faster in Asia
- Europe can lead in applications
- Opportunities for small players

Energy Efficiency

The ability to rapidly scale up and down on their usage of computational resources is attractive to users of cloud services. Economies of scale and a renewed interest in effective data center operations can help reap the benefits from cloud computing.

Disaster Tolerance

The benefits of cloud storage are storage medium independence and a potentially high long-term reliability. Challenges remain for transactional workloads such as ERP and financial software systems, but ongoing research is addressing these one by one.

Security Concerns

Economies of scale and the potential availability and disaster tolerance features of most cloud providers are generally attractive – yet to be balanced against the access costs for that storage and the lock-in to the cloud storage provider.

Opportunities for Small Players

The biggest advantage of all types of cloud offerings is the very low initial barrier to entry for new players and the flexible consumption options enabled for users of such services.



- **Economic study** on the global trends and the challenges and opportunities
- **Public consultations** with all relevant stakeholders on the risk and opportunities
- Leverage the **use of E.U. R&D instruments** for the development
- Leverage **E.U. programs (e.g., Structural Funds)** to promote the effective and secure usage
- Encourage public administrations in Europe to become **early adopters**
- Initiate **discussions with major trading partners** for the global harmonization of national privacy and security regulations in cloud computing.

Thank you!

QUESTIONS – COMMENTS – DISCUSSION



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