



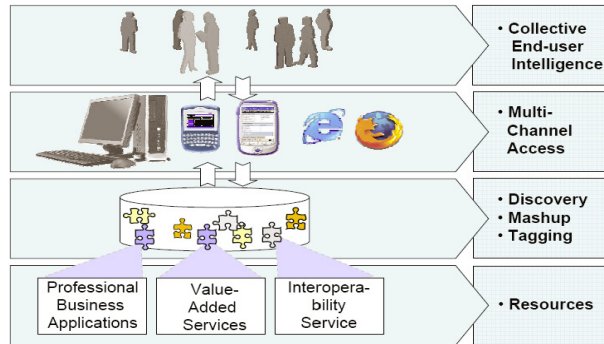
STI · INTERNATIONAL

Future Internet: The European Initiative

Alexander Wahler – STI International

What is the “Future Internet”?

Internet of Services, Service Web



3D Internet



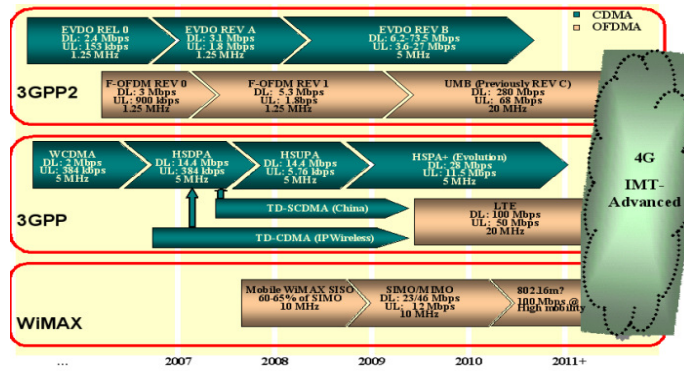
Trust



Security



Internet of Things



Networks of the Future

-
- Internet of Services, where services are ubiquitous;
 - Internet of Things where in principle every physical object becomes an online addressable resource;
 - Mobile Internet where 24/7 seamless connectivity over multiple devices is the norm;

 - Need for semantics in order to meet the challenges presented by the dramatic increase in the scale of content and users.

Future Internet: Expectations

- **Open**
 - Status, size, nature of organisation; individual circumstances are no barrier
- **Scalable**
 - A platform which integrates billions or trillions of entities;
- **Dynamic and Proactive**
 - Services and service requesters may appear and disappear
 - Services should adapt smoothly
- **Decentralised**
 - New approaches to management are required in order to extract business value from utilisation
- **Partially predictable**
 - Size, dynamicity and distribution of coordination prohibits a predictable global behaviour
- **Perfectly Interactive**
 - Permanent, transparent, seamless, trustworthy

BLED Declaration

The BLED Declaration: Towards a European approach to the Future Internet

Current Internet: Success & Challenges

With over a billion users world-wide, the current Internet is a great success – a global integrated communications infrastructure and service platform underpinning the fabric of the European economy and European society in general. However, today's Internet was designed in the 1970s for purposes that bear little resemblance to current and foreseen usage scenarios. Mismatches between original design goals and current utilization are now beginning to hamper the Internet's potential. A large number of challenges in the realms of technology, business, society and governance have to be overcome if the future development of the Internet is to sustain the networked society of tomorrow.

Future Internet: Vital to continued economic growth in Europe

In the future, even more users, objects, services and critical information infrastructures will be networked through the Future Internet which will underpin an ever larger share of our modern and global economies. It is therefore time to strengthen and focus European activities on the Future Internet to maintain Europe's competitiveness in the global marketplace.

A significant change is required and the European Internet scientific and economic actors, researchers, industrialists, SMEs, users, service and content providers, now assert the urgent necessity to redesign the Internet, taking a broad multi-disciplinary approach, to meet Europe's societal and commercial ambitions.

Future Internet: Addressing the Challenges through EU Collaboration & Cooperation

EU member states have already committed, through the renewed Union Agenda and the (2010 initiative, €9.1 billion of funding, as part of a public-private partnership, for ICT research over the duration of FP7. However, we must ensure that, within this, continuous and long-term support is given to the design of the Future Internet as a key element of the future networked society. It is of strategic importance for Europe to fully engage in the conception, development and innovation of a Future Internet ensuring the long-term growth of the ICT sector, full support to an ICT based economy, and the elimination of the digital divide for all citizens.

The research projects assembled here in Bled represent the first phase of this public-private partnership, a joint investment of over €400 million, that recognises the challenges above and emphasises a concerted and comprehensive process of redesign, based upon novel network, service, trust, security and content technologies together with strong initiatives towards new innovations in societal, governance and service domains, in order to ensure that the Future Internet fulfils its potential.

More specifically, building upon the obligations of our individual project contracts and the goals of the Strategic Agendas of the European Technology Platforms, we confirm our ambitions include:

Fostering Favourable Conditions through Coordinated Action

- Coordinate our efforts to foster cross-disciplinary innovation and creativity.
- Work together through a European Future Internet Assembly of research projects strengthening cross-disciplinary activity and optimising the impact of our actions.
- Cultivate and foster the skills and knowledge required to develop the Future Internet.
- Create the conditions for the deployment of services and service oriented systems.
- Communicate through open standards for Future Internet technologies and architectures.
- Open the European Future Internet Assembly to new projects and actors over time to widen the coordination and consistency of the action.

Jointly Designing, Developing and Experimenting

- Services and networking architecture for the Future Internet.
- Location independent, interoperable, coherent, consistent, scalable, pervasive, reliable, secure and efficient access to a coordinated set of services.
- Tools supporting collaborative business models and social network applications.
- Technologies ensuring the robustness and security of the networks, managing identities, protecting privacy and creating trust in the on-line world.

Increasing Awareness at Policy Level

- Raise awareness of the economic, policy and regulatory issues as identified by the newly proposed European Future Internet Assembly, the UN Internet Governance Forum, the OECD and the European regulatory framework.
- Contribute to the definition of European positions within global forums and arenas.

Windows Media Player

- Jointly Designing, Developing and Experimenting**
- Services and networking architecture for the Future Internet.
 - Location independent, interoperable, coherent, consistent, scalable, pervasive, reliable, secure and efficient access to a coordinated set of services.
 - Tools supporting collaborative business models and social network applications.
 - Technologies ensuring the robustness and security of the networks, managing identities, protecting privacy and creating trust in the on-line world.
 - Approaches and tools to leverage the full potential of the Internet of Things.
 - Capabilities for supporting the creation, sharing, locating and delivery of rich media content.
- Increasing Awareness at Policy Level**
- Raise awareness of the economic, policy and regulatory issues as identified by the newly proposed European Future Internet Assembly, the UN Internet Governance Forum, the OECD and the European regulatory framework.
 - Contribute to the definition of European positions within global forums and arenas.
- Call for European action towards the Future Internet**
- To help us meet these major challenges, we call on the:
- European Member States to strengthen and coordinate their national R&D efforts and initiatives toward the Future Internet.
 - European Commission to stress the vision and amplify the related R&D in order to drive Europe ahead of tomorrow's Internet transformations in the way we work, live, and interact.
 - European Member States and the European Commission to support the creation and activities of the European Future Internet Assembly proposed in this declaration.

This declaration is endorsed by the following European Technology Platforms and European Research Projects*:

eMobility, NEM, NESTL, ISI and EPOSS

3030-3D Media	GHORUS	EASE	IN-CRIVE	SAPR	SOCRATES
4HDM	COIN	FORWARD	NESS-2010	3-CUBE	SWIFT
4WARD	CONTENT	INTERSECTION	OPEN	SEA	TAS
ADAMANTIA	CollLoop	IRINOS	RIP MIXE	SENDORA	TASS
AGAYS	DICONET	ISURE	ResLab / FR	SENSEI	TECOM
ASPIRE	ES	in-CUADRA	PERISS	SERVICE	THINGTRUST
AUTOS	eCUBE	MASTER	ResMedia	Service WEB 3.0	VICTOIR
AVANTAGE	EPSPANS	MobileHub2.0	PCOS	SHAPE	WOMBAT
AVISSOINET	DIFFEL	MOBIL-BIN	PRIMALIFE	JIS	
CASAGRAS	CHARLEITE	MOBINE	PRISM	SACOTALIFE	
CHAMTI	EURO-HE	NARN-NINE	RESERVOR	SOARALL	

*Accession to this declaration is open to existing and future EU Projects that wish to actively contribute



Future Internet Assembly

ASPIRE
COIN
CuteLoop
iSURF
CASAGRAS

TRIOLOGY
4WARD
EFIPSANS

E3
SENSEI
CHIANTI
PSIRP
N-CRAVE
MOBITHIN
MOMENT
AUTOI
SMOOTH-IT
SOCRATES
ETNA
SENDORA
EURO-NF (NoE)
sISI
EIFFEL
eMOBILITY
MobileWeb2.o

ONELAB2
PII
FIREWORK
PARADISO
OPNEXT
ECODE
N4C
SmartNet
Perimeter
Echos
ResumeNet
SelfNet
VITAL++
WISEBED

IP
STP
NOE
SA

Network
Architecture and
Mobility

Internet of
"Things"

Content creation
and delivery

Services
Architectures

Trust, Security, Privacy

FIRE Future Internet Res & Exp

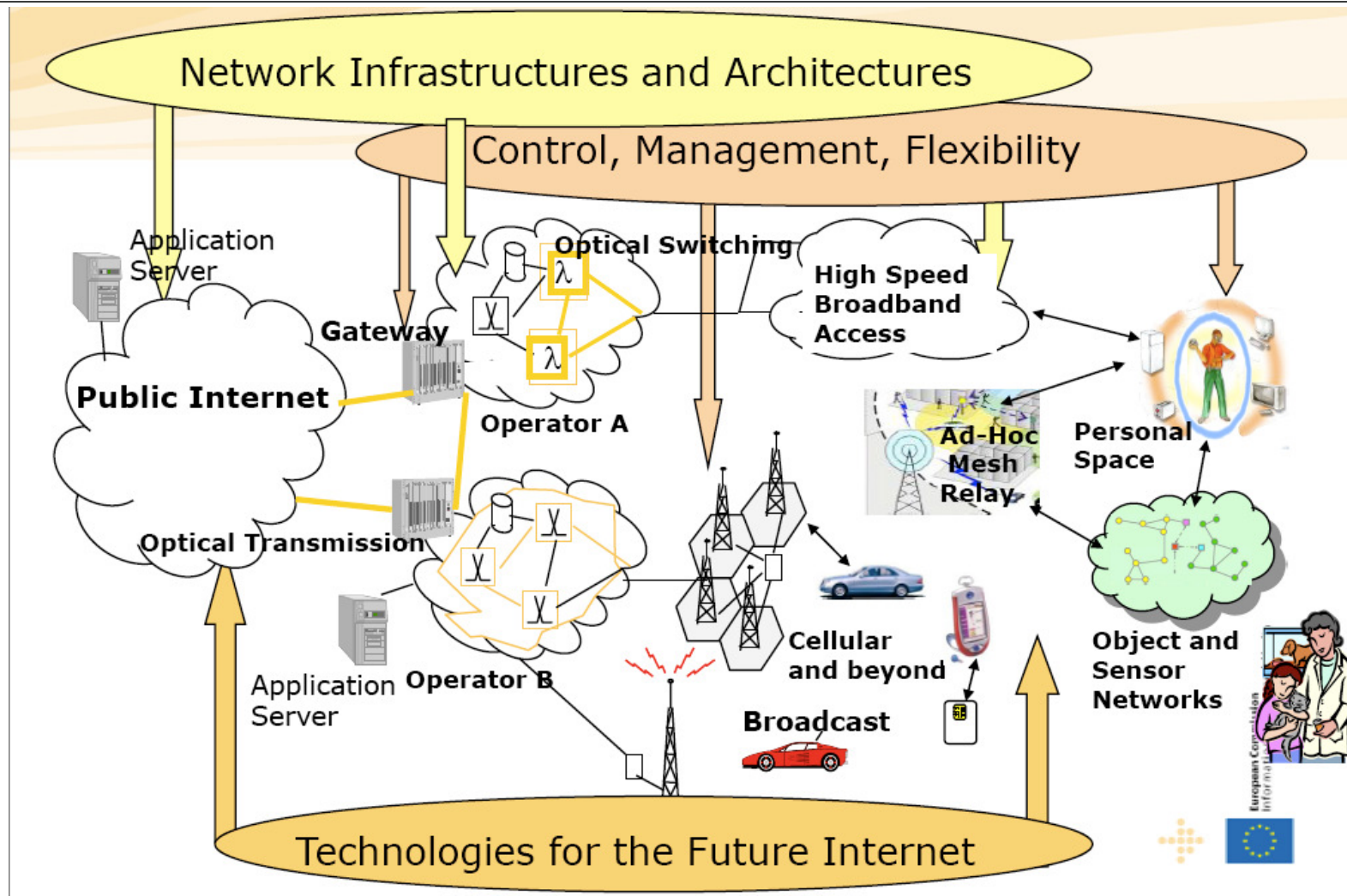
eMobility - NEM - NESSI - ePoss - ISI

P2P NEXT
TA2
2020 3D Media
NAPA-WINE
SEA
ADAMANTIUM
SAPIR
VICTORY
PetaMedia
CONTENT
4NEM

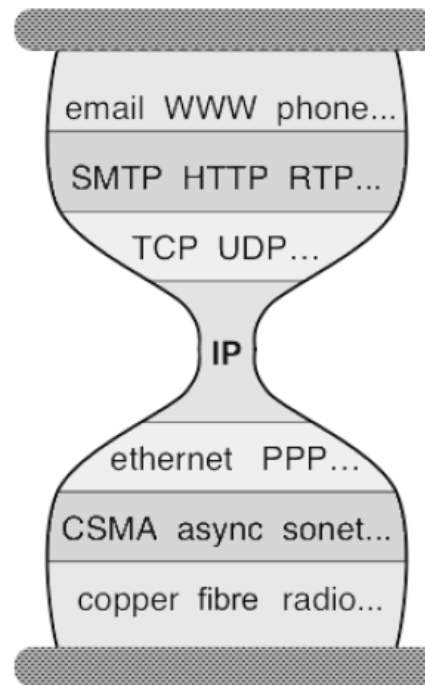
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NEXOF-RA
RESERVOIR
SLA@SOI
SOA4ALL
OPEN
SHAPE
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PERSIST
SERVFACE
S-CUBE
Service WEB 3.0
NESSI 2010

MASTER
TAS3
PRIMELIFE
TECOM
AVANTSSAR
AWISSENET
WOMBAT
PRISM
SWIFT
PICOS
eCRYPT II
FORWARD
THINK-TRUST

Future Internet: Network Architecture & Mobility



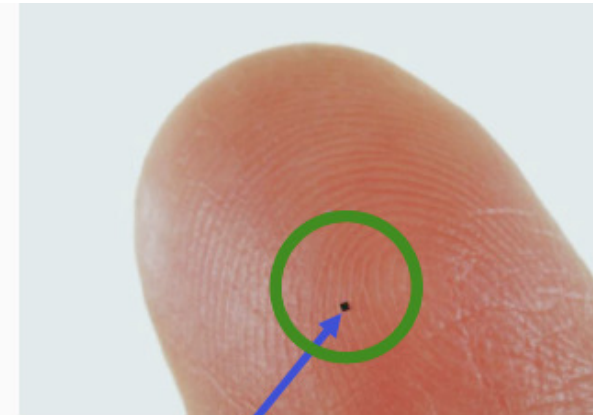
Future Internet: Network Architecture & Mobility



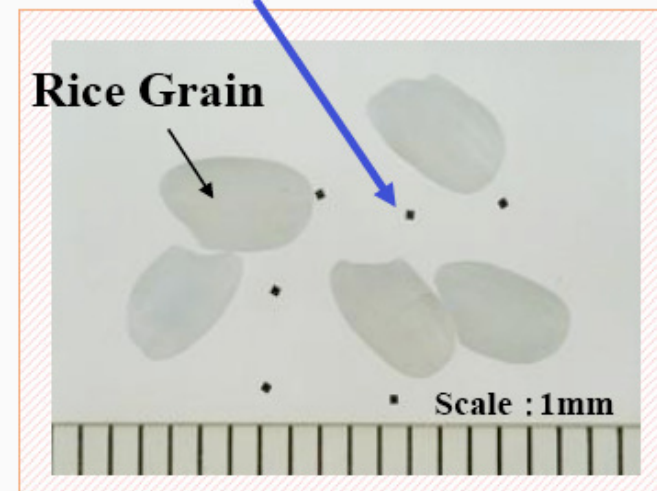
IP Bottleneck

Future Internet: Internet of Things

- **Chip Size 0.4mm x 0.4mm**
- **Radio Frequency 2.45GHz**
- **ROM**
- **ID Data Length : 128bit**
- **ID written in Silicon Wafer**
- **Unique ID Assignment**



μ -Chip



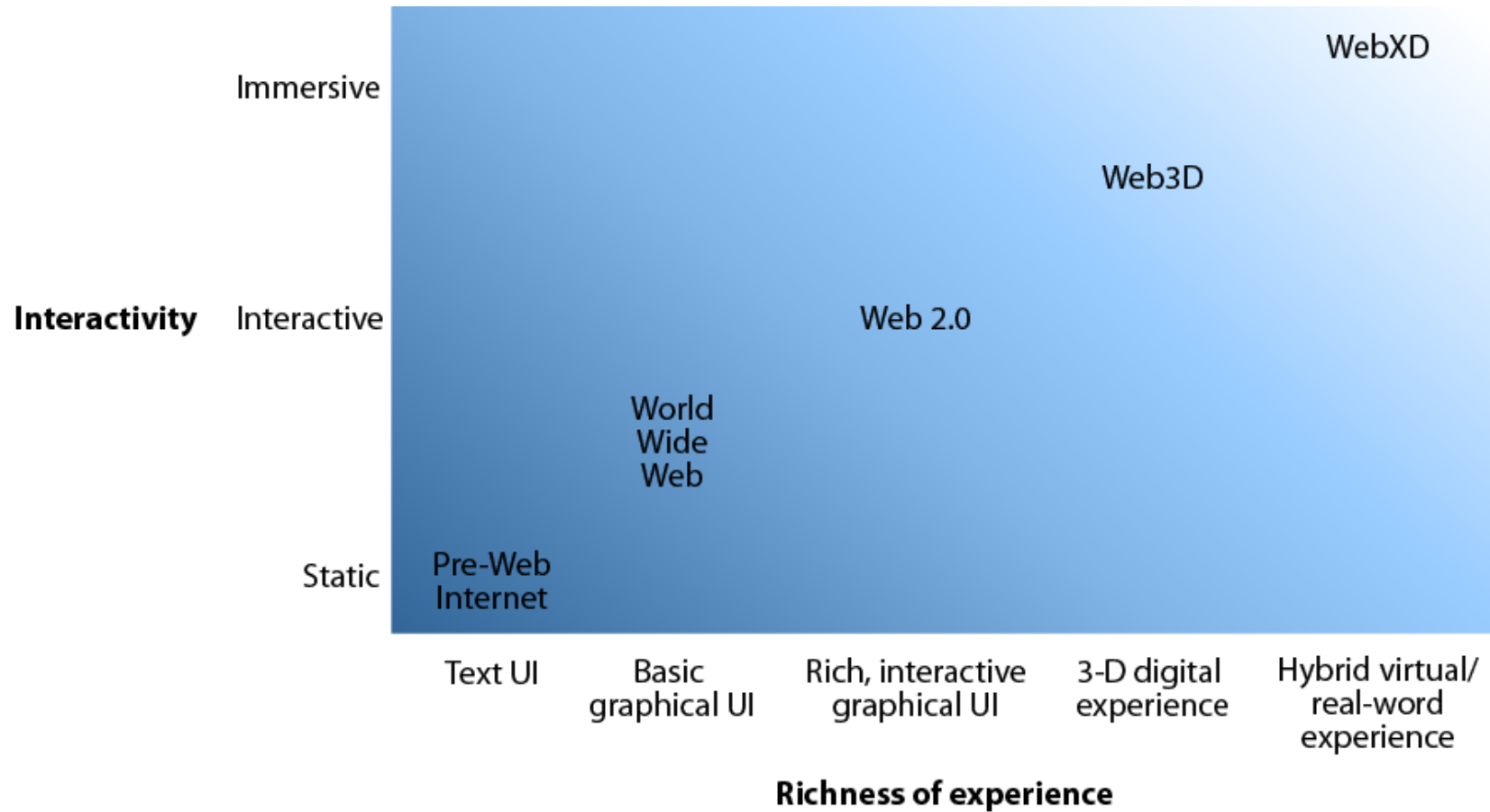
Future Internet: Content Creation & Delivery



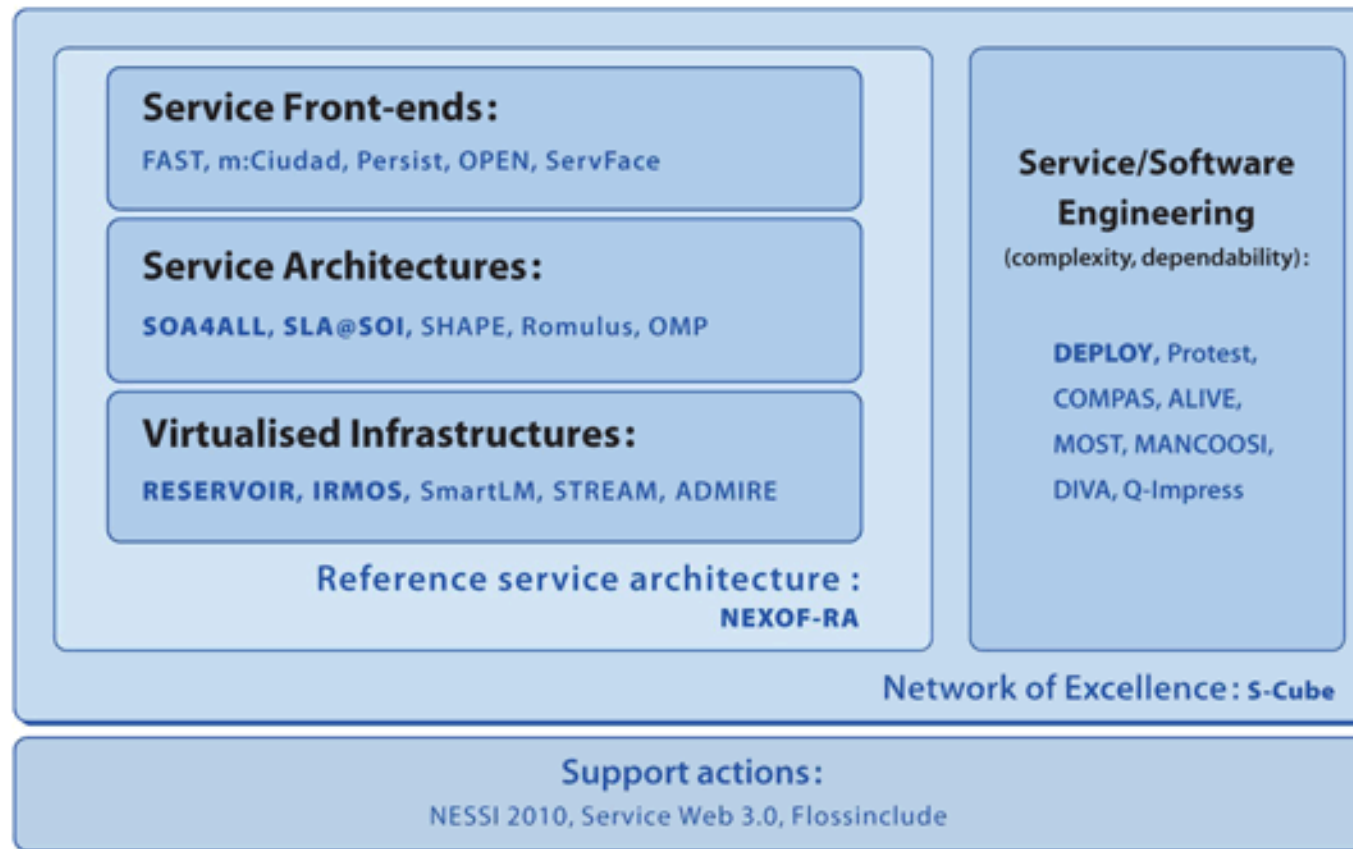
FORRESTER

April 2008 "Web3D: The Next Major Internet Wave"

Evolution Of The Multidimensional Web



Future Internet: Services Architectures



*IP/NoEs in bold

Future Internet: Trust, Security, Privacy



The screenshot shows the Channel 4 4oD website. At the top left is the Channel 4 logo and a list of services: E4, More4, Film4, 4Radio, and 4oD. Below this is an 'A-Z Sitemap' link. In the center is a search bar with 'Channel 4' and 'The web' radio buttons, a search input field, and a 'Search' button. To the right of the search bar is a 'Powered by Google' logo. Below the search bar is a navigation menu with links for Home, Watch Online, TV, Entertainment, Lifestyle, News, Documentaries, and Interact. The main content area has a sub-navigation bar with links for 4oD, How to Use 4oD, What's on 4oD, Prices, Get 4oD, and 4oD Help. The main content features a large image of a man holding a smartphone with a red 'f' logo. To the right of the image is the heading 'This is 4oD' and the sub-heading 'The best of Channel 4, on demand'. Below this is a paragraph: 'With thousands of hours of TV and film to choose from, you can watch what you want, when you want.' This is followed by a bulleted list: 'Catch up on the last 30 days' TV for FREE', 'Enjoy 1000s of classic episodes FREE', and 'Pre-book your favourite shows and never miss a thing'. Below the list is a link 'Tell me more'. A pink button below the image says 'GET 4oD ON YOUR PC NOW'. Below the button is a 'Welcome to 4oD' section with the same paragraph as above. To the right of this is a 'Great Channel 4 shows' section with a 'free' badge, an image of two men, and text: 'Thousands of classic episodes including Skins, Black Books and Teachers available to watch FREE'. A 'Find out more' link and a 'Get 4oD on your PC now' link are also present.

Contact



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