



Liquid Applications

Executive presentation



Liquid
Powered by
Nokia Siemens
Networks
Net



The changing revenue landscape

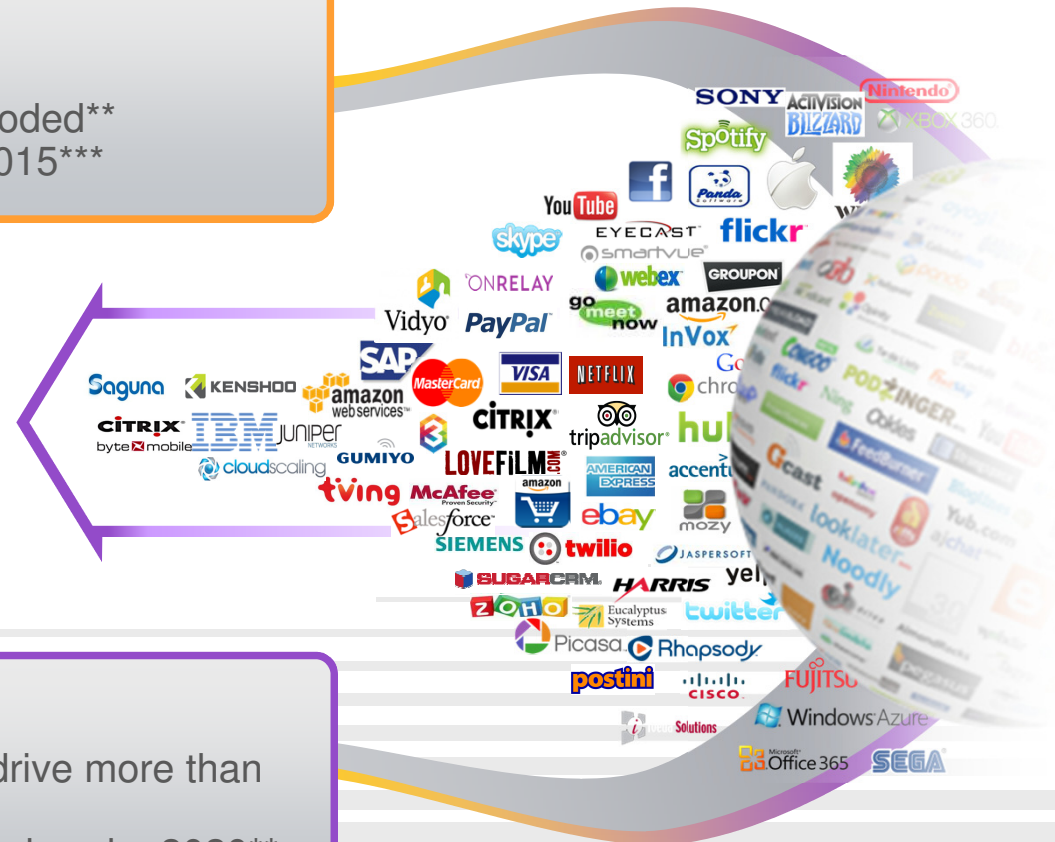
Mobile operators

- Mobile broadband usage is growing (>60%)*
- High margin products (Voice 40%, SMS 70%) are being eroded**
- Current telco business models will fail to be profitable by 2015***



A radical shift, both in technology & eco-system is needed to generate value

Value



Web service providers/ISVs

- M2M, mobile advertising, m-health, m-payments, etc, will drive more than half of all incremental revenue growth**
- Cloud-based computing will increase to 72% of all data services by 2020**

Customer confidential

Unique document identifier (ID) / Version number / Life cycle status

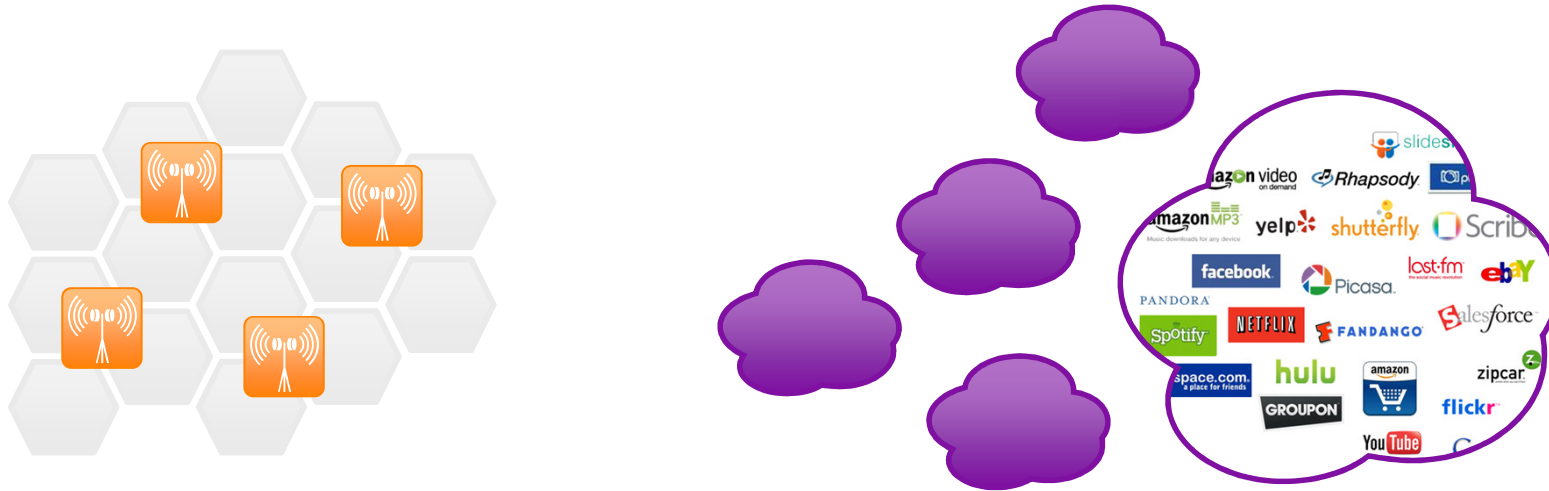
*Nokia Siemens Networks Acquisition and Retention Study (2011)

** The Future of Telecom: New models for a new industry, Delta partners (2012)

*** End of profitability, Tellabs Insight (2011)



Imagine a technology enabler for ...



Mobile operators



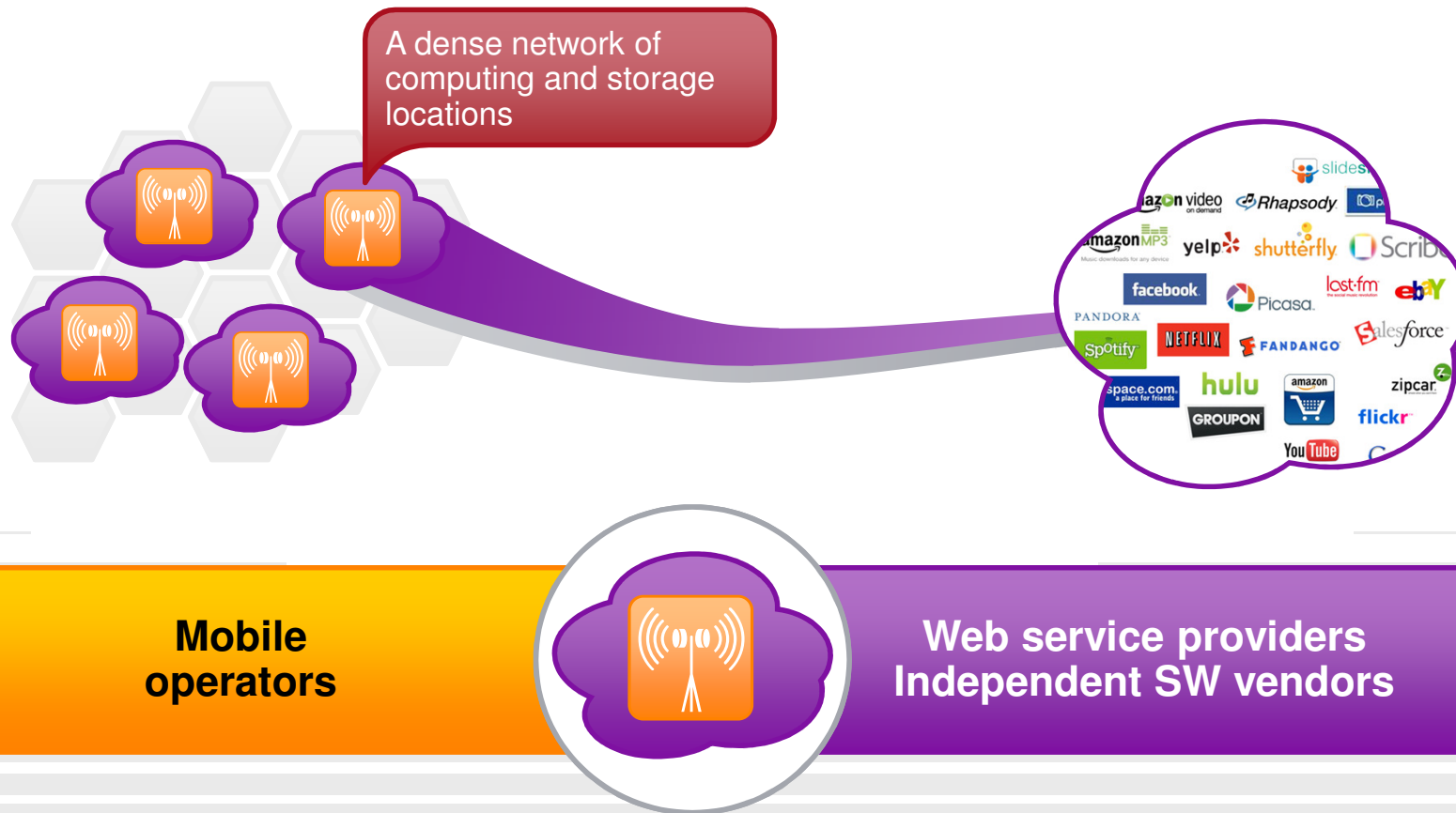
**Web service providers
Independent SW vendors**

Customer confidential

Unique document identifier (ID) / Version number / Life cycle status



... a transformation at the edge of the network

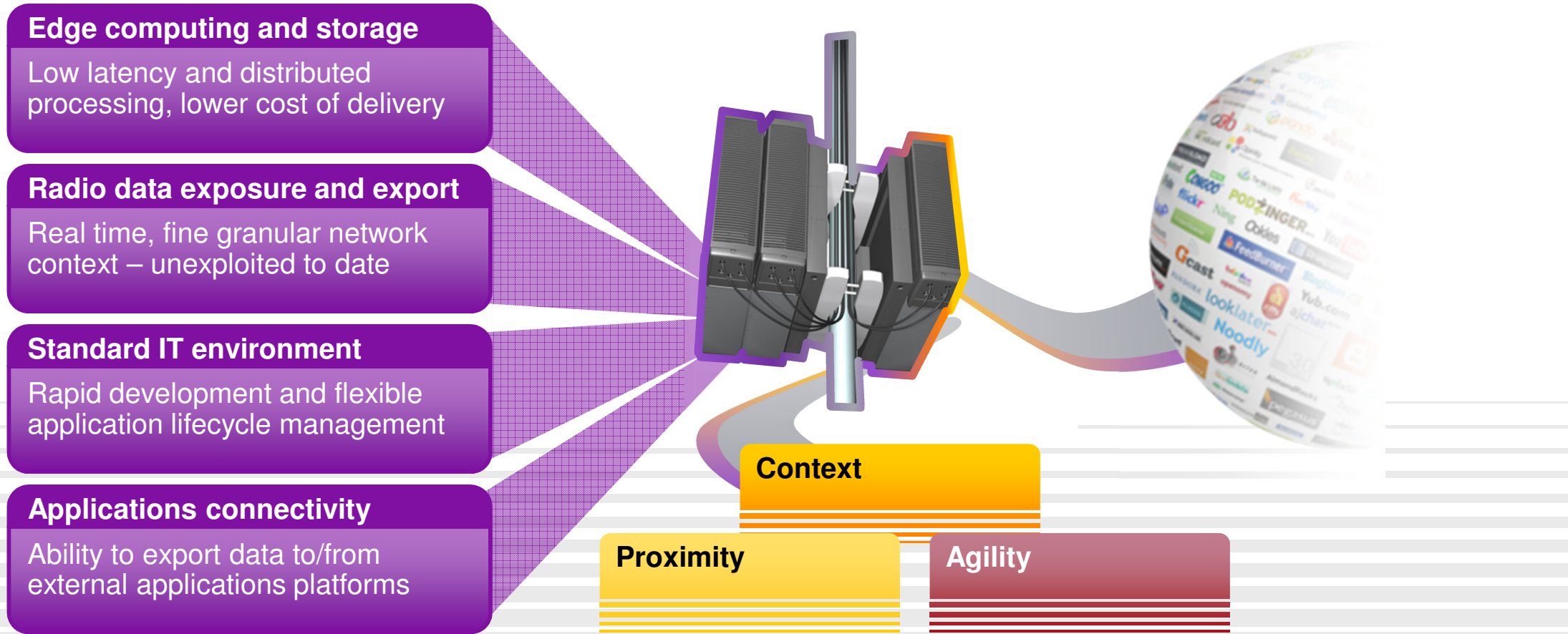


Customer confidential

Unique document identifier (ID) / Version number / Life cycle status



A base station becomes a value creation engine

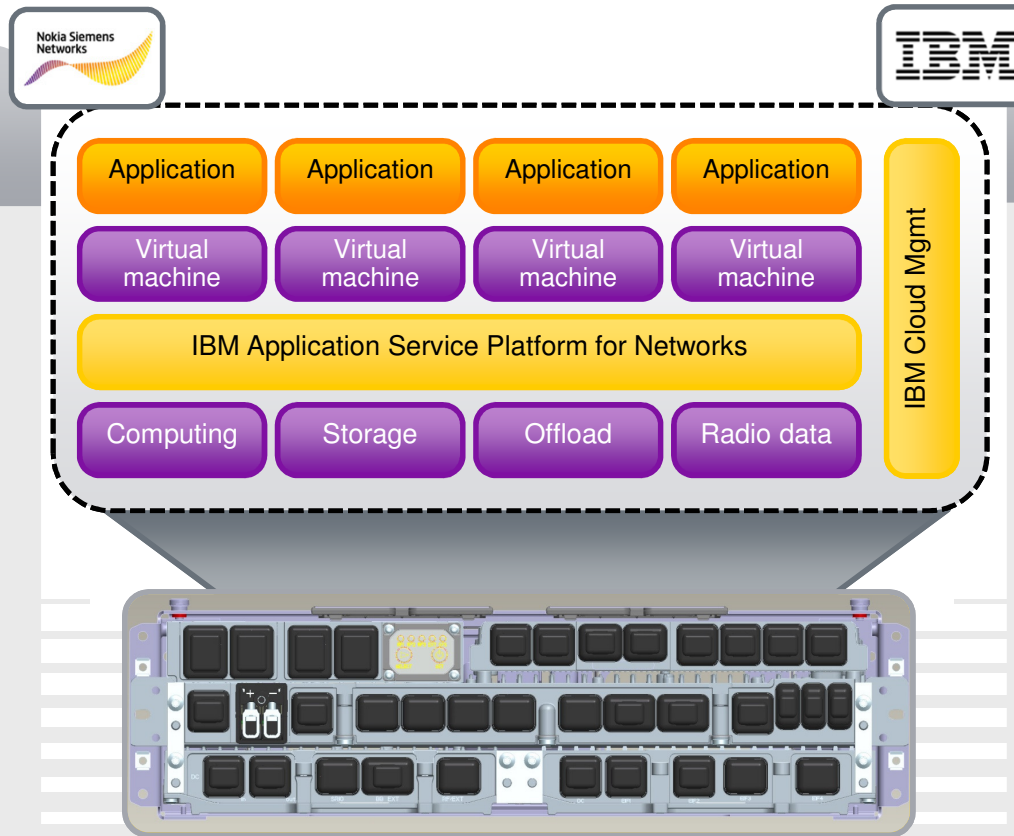


Base station computing platform

Supporting an application environment

Radio Applications Cloud Server (RACS)

- Computing platform fully integrated with the Flexi Multiradio Base Station
- World's first mobile edge server platform within a macro base station
- With access to real-time network data that has not been exploited to date



Websphere Application Service Platform for Networks (ASPN)

- Standards-based runtime and management platform
- Designed to deploy, run and integrate applications in a highly distributed virtualized environment
- Applications and services run in cloud-like containers, isolated from one another but able to communicate securely with each other and the platform

Customer confidential

Unique document identifier (ID) / Version number / Life cycle status

A new experience that drives new value

Optimize
the utilization of
network resources

Caching for backhaul relief & step
change in video experience



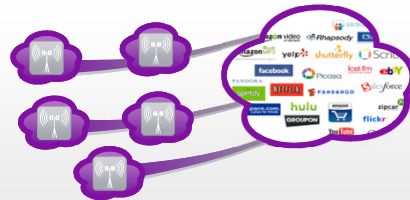
Augmented reality delivered
from the curbside



Differentiate
through superior
application
performance &
exciting new services

Monetize
network data and
proximity delivery
of web services

Contextualizing applications
with real-time networks data



Long-term revenues from
sticky smart city applications



New services
by hosting enterprise
& M2M applications
at the network edge

Customer confidential

Unique document identifier (ID) / Version number / Life cycle status

Innovation towards a Liquid Vision

Service-Aware RAN

Proximity

The processing at network-edge base stations in the closest proximity to users enables high quality interactive service in a real-time manner.

Utilization of context information

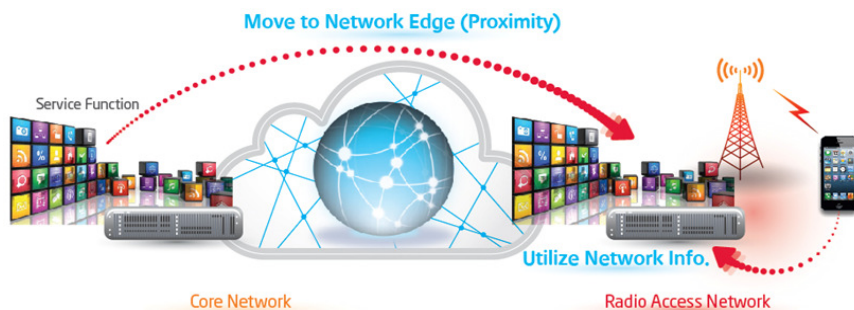
Service-Aware RAN can offer a wide variety of intelligent services by utilizing diverse context information including cell id, cell traffic / load and channel quality, as well as non-connectivity data. Such context information, collected by Service-Aware RAN, can allow operators to optimize network quality and customer experience. Moreover, under operator's Open API policy introduced to promote open collaboration in the ICT ecosystem, external developers can access and exploit such context information to create innovative service application.



Dr. Choi Jinsung, EVP,
Head of ICT R&D Center,
SK Telecom

“Telecom providers are realizing that optimized transmission of data alone can no longer guarantee success in the market.

SK Telecom will work closely with Nokia Siemens Networks to bring innovative changes to people's lives by developing and applying new network technologies”



Customer confidential

Unique document identifier (ID) / Version number / Life cycle status

What the industry analysts think ...

“NSN is the first of the large Tier 1 vendors to have embraced the edge computing proposition. The collaboration of NSN and IBM is a perfect example of Telco IT convergence. This announcement, in my own view, stands out amongst all the other network vendor announcements at MWC 2013. That's because it combines the radical concept of edge networking with Big Data analytics and application enablement - three areas which are bound to be on the lips of every network vendor and mobile service provider going forward”

(Aditya Kaul, ABI Research 2/28/2013)

ABIresearch®

“Placing services close to the users is a step towards creating a network architecture that prepares mobile operators for content-heavy, performance-oriented service models that will be critical to competitive advantage in the future” (Gabriel Brown, Senior Analyst)

HEAVY
READING
ANALYTICS

“Research consistently shows that consumers use their mobile phones predominantly when at home or in the office. Therefore, it is logical to map user preferences and provide local intelligence at the base station. This extension of intelligence from the core to the base station is thus something to watch in the next few years”(Emeka Obiodu, Strategy Analyst, Ovum)

OVUM

“NSN’s Liquid Applications portfolio will be providing a foundation built on by IBM’s experience in big data driven analytics to deliver an offering with relevance beyond the telco sector”

(James Middleton, Managing Editor, telecoms.com)

telecoms.com

“The launch of Nokia Siemens Networks’ Liquid Applications illustrates how central network and IT assets are not just to delivering operational efficiencies and good customer experience but also to generating new services”

(Kris Szaniawski, Analyst, Informa Telecoms & Media)

informa
telecoms & media

Customer confidential

Unique document identifier (ID) / Version number / Life cycle status

for a
world
in motion™

Liquid Net

Powered by
Nokia Siemens
Networks