

KOREA- EU event
30 Sept – 1 Oct 2013,
Seoul, Korea



SEMAFOUR

Integrated Self-Management for Future Radio Access Networks

Colin Willcock,
Nokia Siemens Networks, Germany

- Key Current Challenges
- SEMAFOUR Vision
- Future Challenges



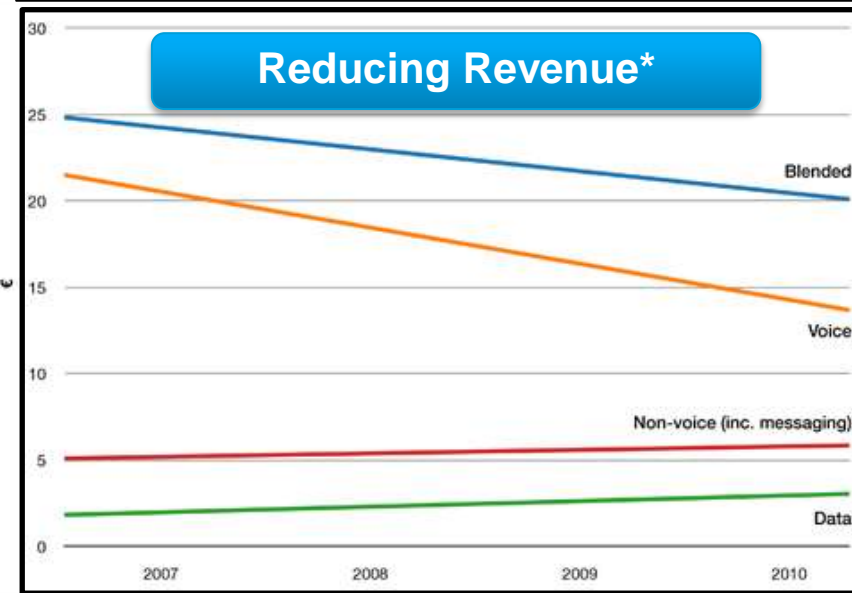
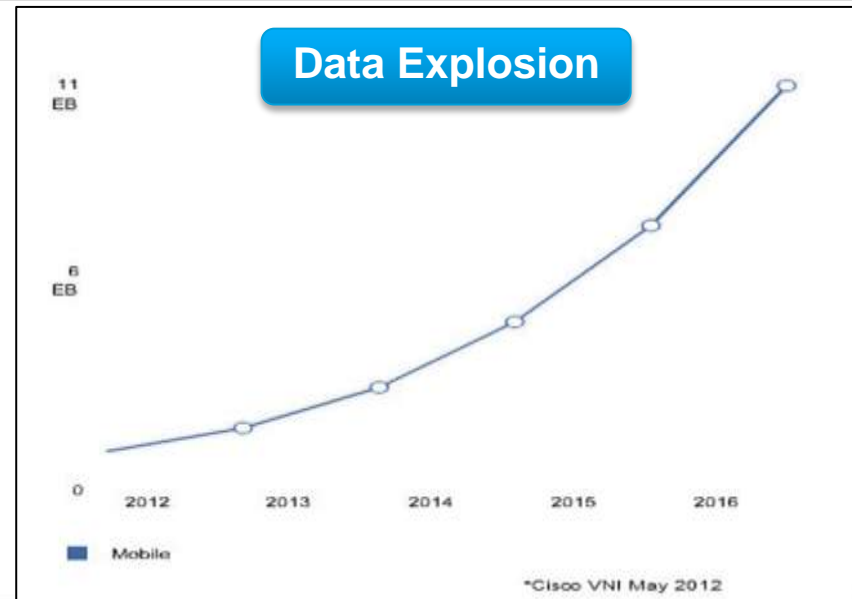
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Key Current Challenges

Key Challenge: Market Pressure

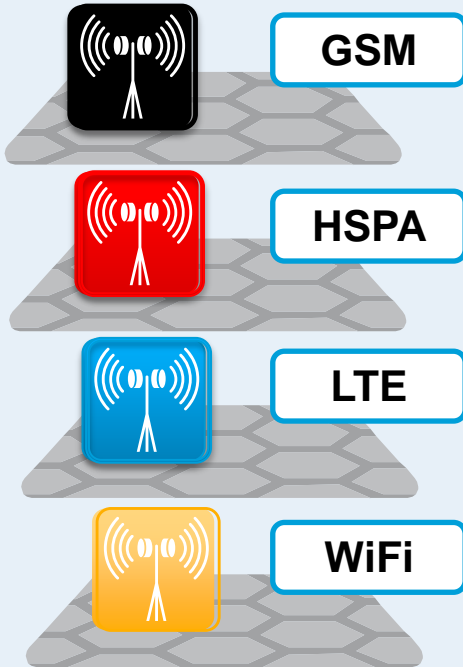


„My Smart phone needs to be charged so often it has almost turned into a fixed phone again!“

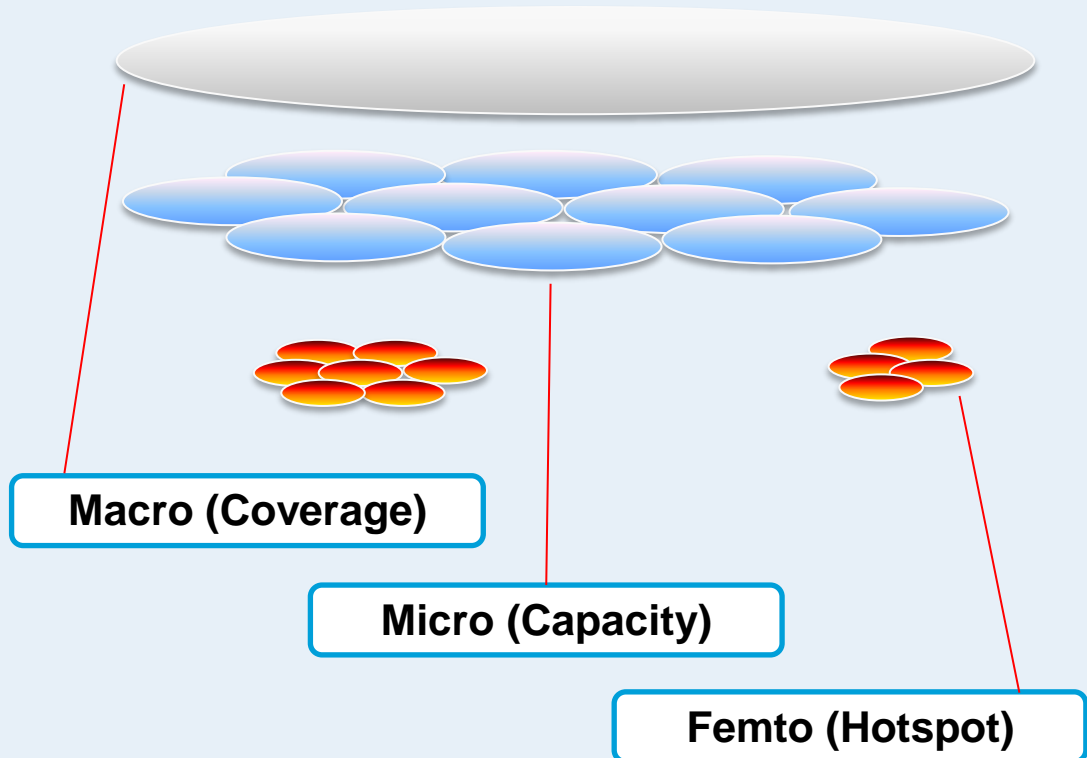


Key Challenge: Managing Future Network Complexity

Multiple RATs



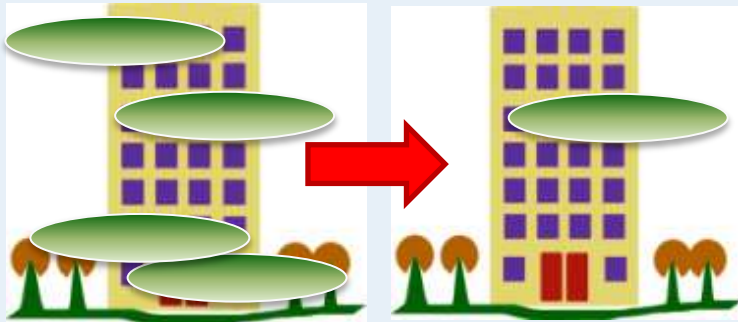
Multiple Layers



Key Challenge: Managing Future Network Complexity

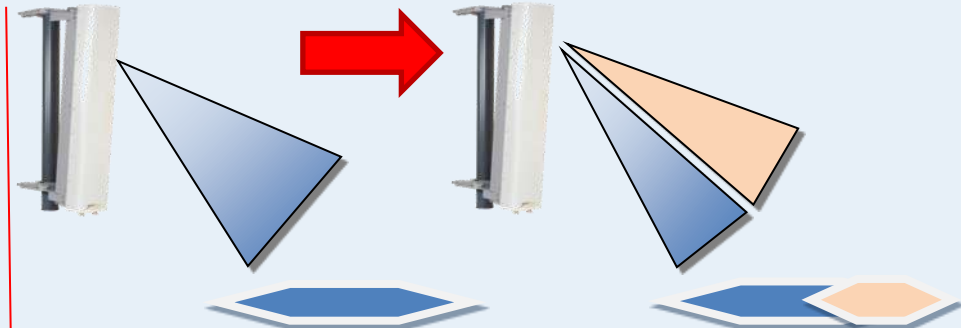
Network Dynamism

Femto Cells



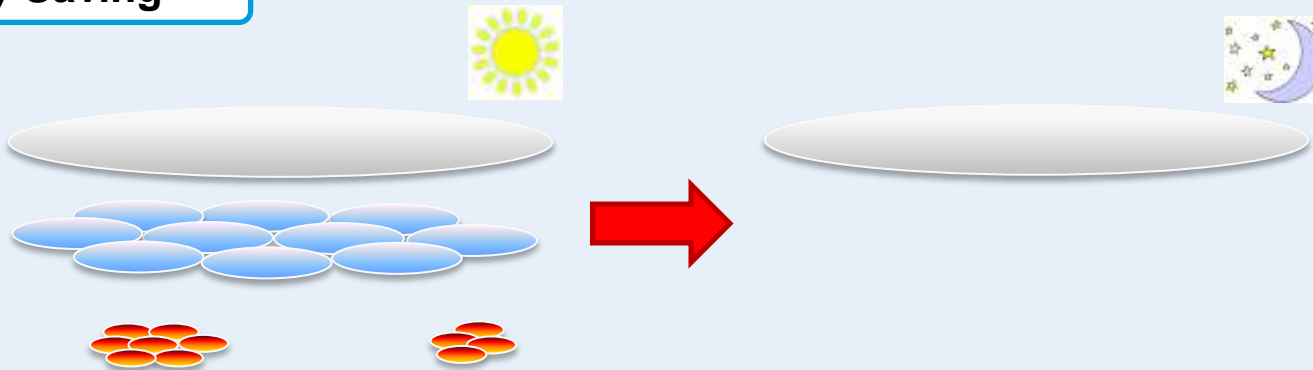
time

Active Antennas



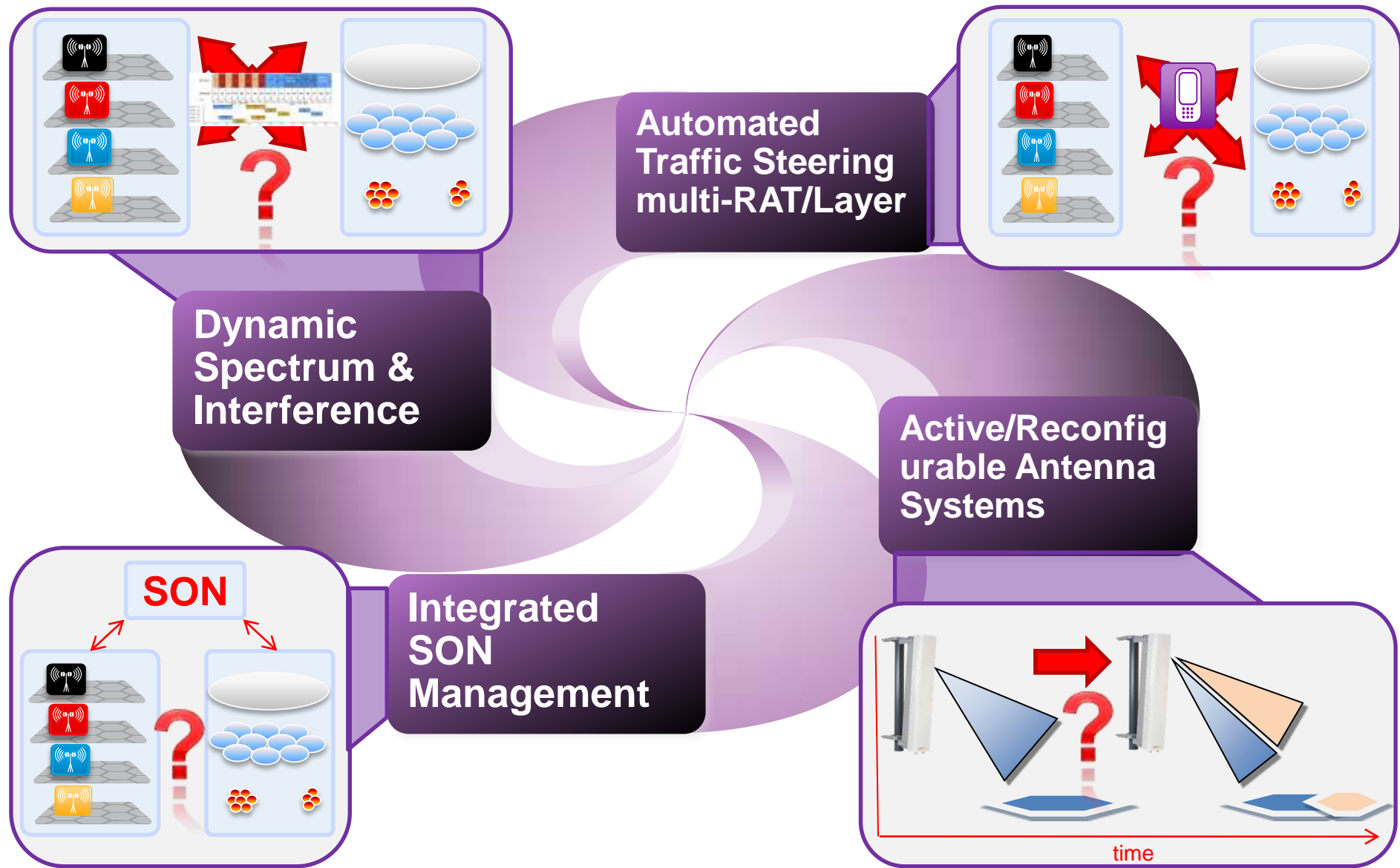
time

Energy Saving



time

Which Areas Need to be Addressed?





- FP7 STREP Project
- Develop the next generation of SON Solutions
- Project Duration 09/2012-08/2015

Develop a Unified self-management system efficiently operating a heterogeneous mobile network comprising a multitude of radio access technologies and layers

atesio

 iMinds
CONNECT.INNOVATE.CREATE

 orange™

TNO

ERICSSON 

nsn

Telefonica





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SEMAFOUR Vision

Integrated SON Management

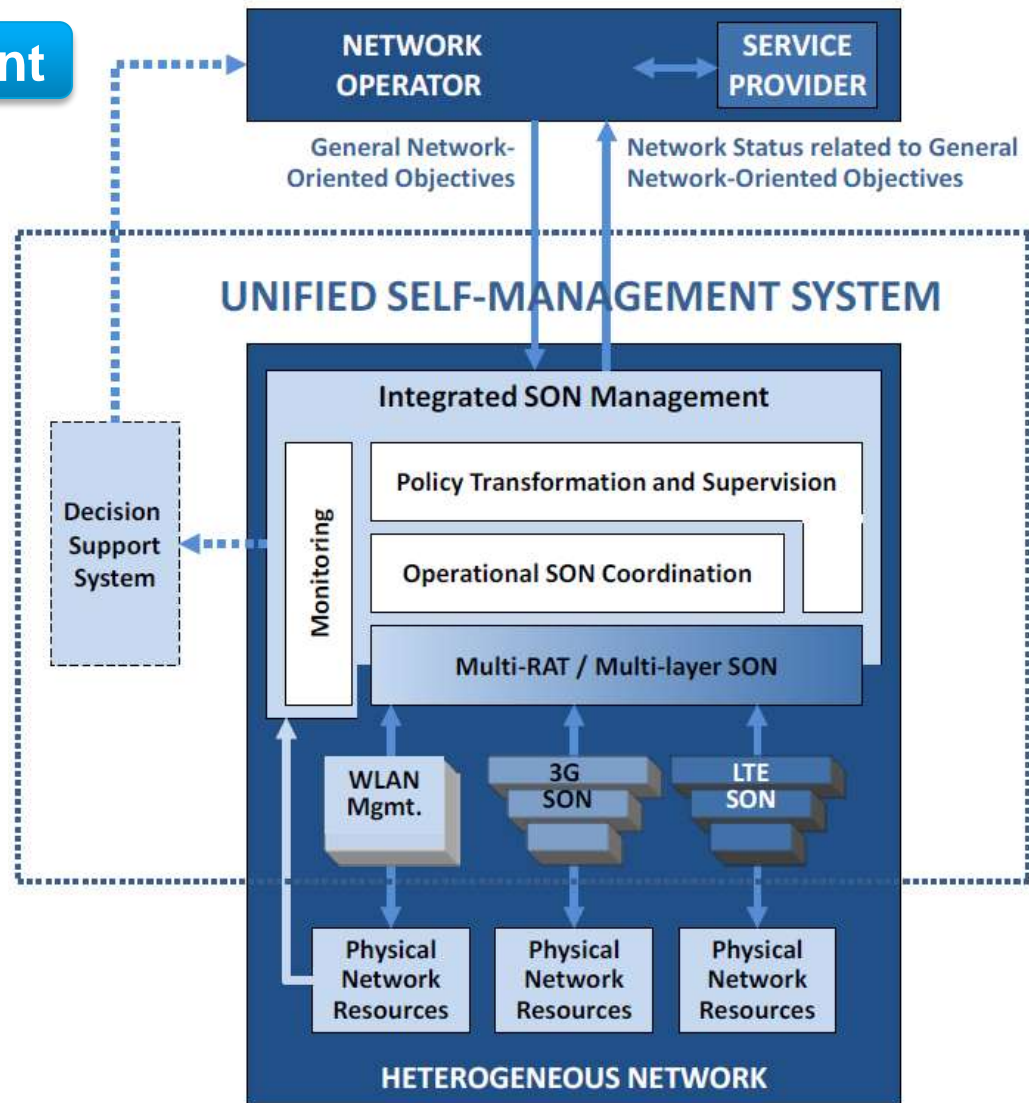
- Policy transformation
- SON coordination
- Monitoring

SON functions

- Single/multi-RAT/layer
- Self-configuration, -optimization, -healing

Decision support system

- Spectrum re-farming
- Technology upgrades
- Site deployment
- SLA management





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Future Challenges

Key requirements for network infrastructure towards 2020



Support up to 1000 times more traffic



Enable Gbps peak speeds



Improve energy efficiency



Deliver safe superior customer experience

Manage up to 10 times more users



Reduce latency to milliseconds



Make networks self-aware, self-adaptable, and intelligent



- Authorised Shared Access spectrum management in a multi-operator environment.
- 5G Mobile Radio Systems; self-organizing principles are major requirements in 5G and SON has to be more distributed than today.
- Cognitive Networks
 - The application of big data analytics and Artificial Intelligence technologies will help to create the Cognitive Network that can autonomously handle complex end-to-end network and service management.
- Personalization of the network experience
 - Customer experience management (CEM) In future, the capabilities of CEM can be enhanced substantially when combined with the Cognitive Network approach. In short, cognitive networks can dynamically optimize the experience of selected users in response to a changing environment.

For More Information

- Learn more at www.fp7-semafour.eu/
- Includes Demonstration video

