

Scenario Analysis on Future Internet

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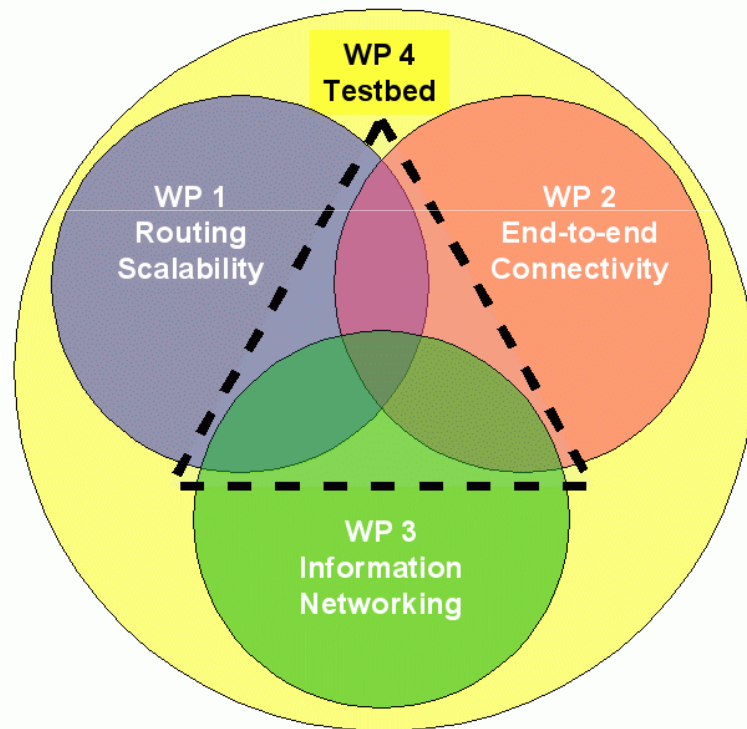
Outline

- ▶ Finnish future Internet programme
- ▶ Research question
- ▶ Research method – Scenario planning
- ▶ Key trends and uncertainties
- ▶ Scenarios and strategic implications
- ▶ Conclusions

Finnish Future Internet Programme

Vision: Future Internet = a mission critical backbone of global information society

Mission: Enhance the Internet technology and ecology as a *platform for innovation* while providing strong governance over the use of the network resources and information



WP 0
Management
& cross
issues

WP 5
Dissemination



NOKIA
Connecting People



TeliaSonera



- Start: April 2008
- 50 person years/year
- www.futureinternet.fi

(Reijo Paajanen, CEO of TIVIT, presented in Future Internet Assembly, December 9, 2008)

Research Question of the Thesis

- ▶ Which are the alternative (technological) scenarios for Internet over 10 years and what are the key trends and uncertainties that produce these scenarios?



Supporting Strategic Questions

1. IETF standards: What should be the IETF strategy of TIVIT/FI programme to cope with each scenario?
2. EU policies: What should be the EU strategy of TIVIT/FI programme to cope with each scenario?

Research Method – Scenario Planning

- ▶ To forecast the future?
 - ▶ Too difficult
- ▶ To envision *alternative futures (= scenarios)*
 - ▶ Not just the probable futures, but also the improbable ones
 - ▶ Not to forecast, but to *bound the uncertainty*
- ▶ Main idea: To *identify the main forces that are shaping the future*, both certain and uncertain
 - ▶ Starting point for scenario planning



1. Setting the scene and scope

- Define *time frame*, *scope* and *decision variables*. Identify major *stakeholders*.

2. Identifying key trends and uncertainties

- *Key trends* = important forces whose consequences have not yet unfolded.
- *Key uncertainties* = important forces whose outcomes are not very predictable.

3. Scenario construction

- *Select two most important key uncertainties* → scenario matrix.
- Add impact of other key uncertainties and trends.
- Assess *internal consistency* and plausibility, revise.
- Assess *stakeholder behaviour*.

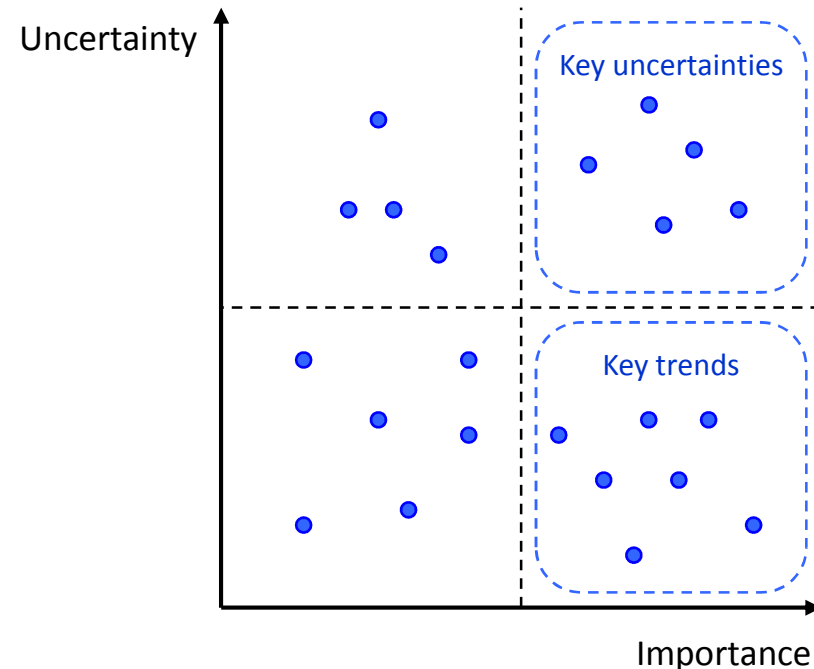
4. Quantitative modelling



Identifying Key Trends and Uncertainties

▶ Brainstorming

- ▶ To identify key trends and uncertainties
- ▶ 3 sessions with academics and industry experts
- ▶ Divided to 4 x 45 min
 - ▶ **P**olitical / regulatory forces
 - ▶ **E**conomic / industry forces
 - ▶ **S**ocial forces
 - ▶ **T**echnological forces



▶ Expert interviews

- ▶ To deepen the understanding of key uncertainties and scenario drafts
- ▶ 11 interviewees representing different stakeholders

Examples of Key Trends

P

Society will be increasingly dependent on the Internet.

E

World (and Internet) is moving from unipolar to multipolar.

S

Internet is integrating deeper to everyday life.

T

Mobile always-on Internet connectivity increases.

Key Uncertainties

- ▶ Most important key uncertainties
 - ▶ Network structure?
 - ▶ Openness of content, applications, and hosts?



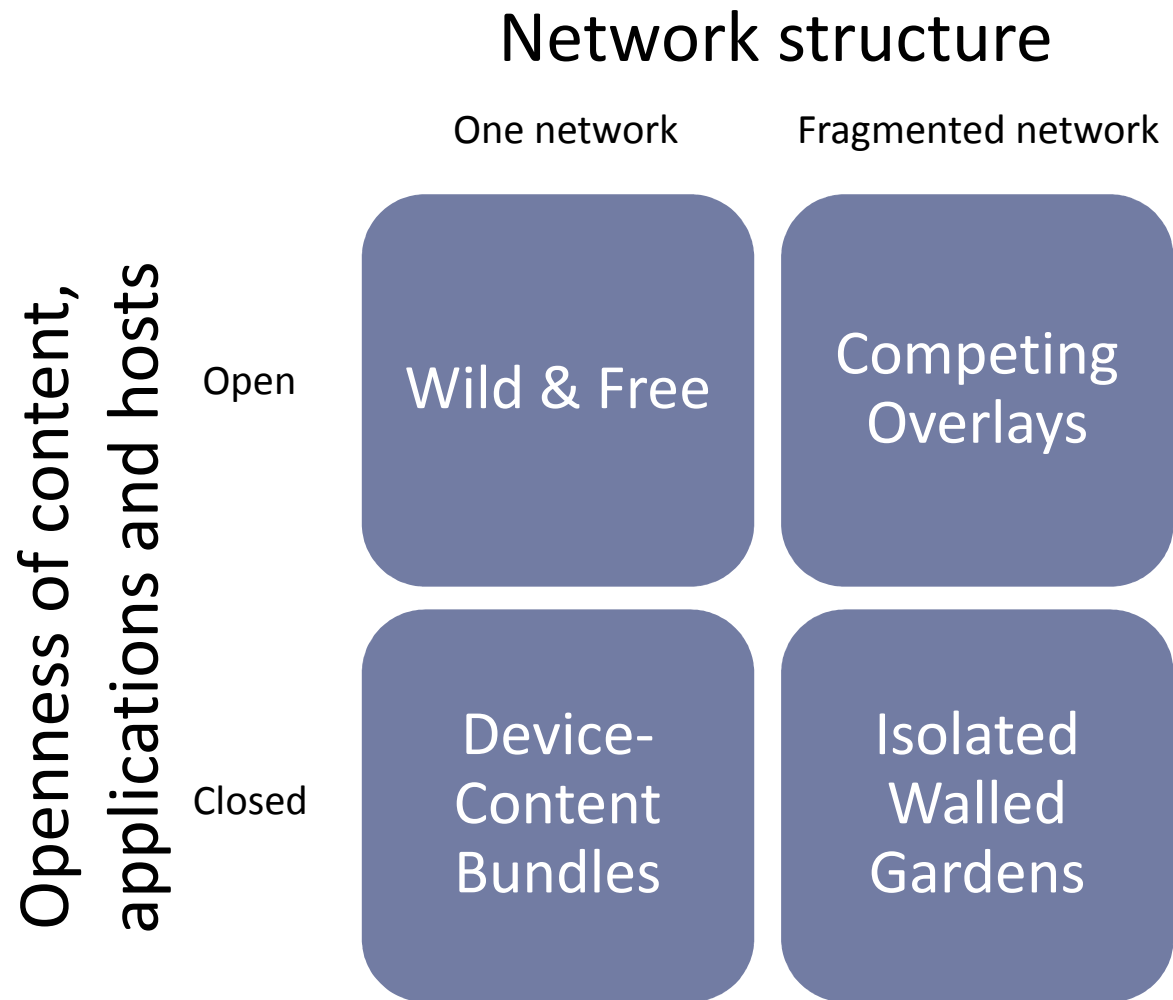
Network structure

		One network	Fragmented network
Openness of content, applications, and hosts	Open		
	Closed		

▶ Other key uncertainties

- ▶ Will Internet face a larger collapse?
- ▶ Standardization, where and how much?
- ▶ Where will the intelligence be located?
- ▶ What will be the dominating business model in Internet economy?
- ▶ How will solutions for trust, security, and authentication be implemented?

Scenarios



Conclusions

- ▶ Concentrated on evolution scenarios
 - ▶ Legacy burden → Difficult to migrate to clean-slate approaches
 - ▶ Clean slate still possible (e.g. in Competing Overlays scenario)
- ▶ The actual situation in 10 years will probably be some kind of combination of all these scenarios
- ▶ Complete thesis will be available in April

Questions?

- ▶ Contact information

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