

„Vision and Management of the Future Internet“: The EMANICS View

Gabi Dreo Rodosek
Universität der Bundeswehr München

EMANICS (European Network of Excellence for the Management of Internet Technologies and Complex Services), which is a FP6 EU funded NoE, has held a workshop on the „Vision and Management of the Future Internet“ from July 3rd to July 4th in Bremen. Selected experts from within and outside EMANICS have been invited to discuss possible scenarios of the future Internet and the possible management implications. We came up with three possible scenarios to be discussed:

- 1) replacement of the current Internet with a „clean slate“ design
- 2) many federated networks and generic inter-networking mechanisms
- 3) evolution happens around IP, while IP stays almost as it is

Does a „clean slate“ design of the Internet means also a „clean slate“ design of the management? Do we need to rethink existing management approaches and architectures? And if the evolution happens around IP, do we need to change anything wrt. to management concepts?

Although we have started to discuss scenarios and ist possible management implications, we came to the conclusion that it would be better to structure the discussion from a more layered perspective. Thus, the discussion was structured to discuss management challenges below, on and above IP.

Here are some position statements from the group discussions:

- The future Internet will have an all optical core, consisting of a few hundred optical switches, which provide end-to-end optical paths.
- Therefore we argue that the role of IP is diminishing; IP will become only an access technology.
- Future Internet = Content + Services.
- Since the users will perceive the future Internet in terms of contents and services, the user should no longer be bothered with details such as IP addresses, fire walls etc.
- The services of the future Internet are (amongst others): ubiquitous access to content and data, context-awareness, personalization of data and services, virtual and mixed reality games, services optimized for your mood, and new Human-Computer Interface.
- Access to a mass of sensor data surrounding the users lead to new services that we cannot image today.
- Security and privacy management will become increasingly important.
- We have to automate management to get the humans as far as possible out of the loop.
- The focus moves from network management, via service management to information and contents management.
- Although we believe that the core routing infrastructure of the Internet will be replaced by an all optical switched network (which can be considered as clean-slate design), the focus of research on the future Internet should be on services and the content (which will not need a clean-slate design).

The main outcomes of the workshop are summarized in the slides.