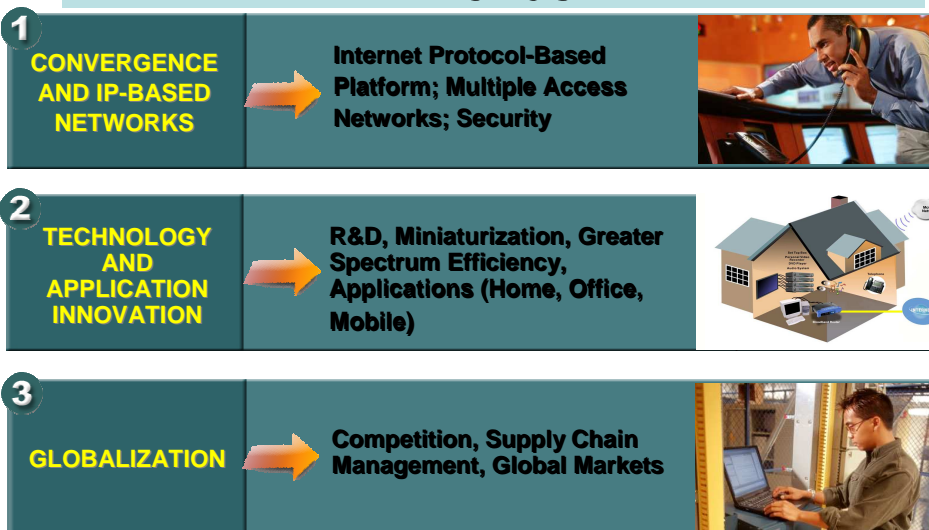


NGN Technology & Systems Development Trends

Keith Mainwaring
Cisco

Telecommunications Industry Trends



Technological Convergence



Device functionality is blurring...

The “end-to-end argument”

“suggests that functions placed at low levels of a system may be redundant or of little value when compared with the cost of providing them at that low level”

End-To-End Arguments In System Design.
1984. *ACM Transactions on Computer Systems*, V.2, N.4, p. 277-88.

J.H. Saltzer, D.P. Reed, & D.D. Clark
MIT Laboratory for Computer Science

Network services

- Despite the "end-to-end argument" some services are probably best offered in the network e.g. Content filtering / parental control, but there are not that many
- Challenges from Internet services (Skype, Google

Convergence

- Infrastructure
 - ISDN
 - ATM
 - IP
- Device (all services on all device types – mobile and fixed)



NGN Evolution

- Various starting points
 - Fixed copper
 - Mobile
 - Fixed broadband

Access technologies

- Fixed xDSL & cable
- Wireless – cellular
 - e.g. GSM, 3G, WiFi, Wimax
- Wireless – "off-air"
 - e.g. DVB-H, DVB-T

Convergence & Competition

Mobile – Fixed

NGN – Internet

- Convergence of technology
- Convergence of regulation
- Focus on end-user who has to be prepared to pay for telecommunications services for investment to pay returns