



Building the Next “Next Generation Networks”

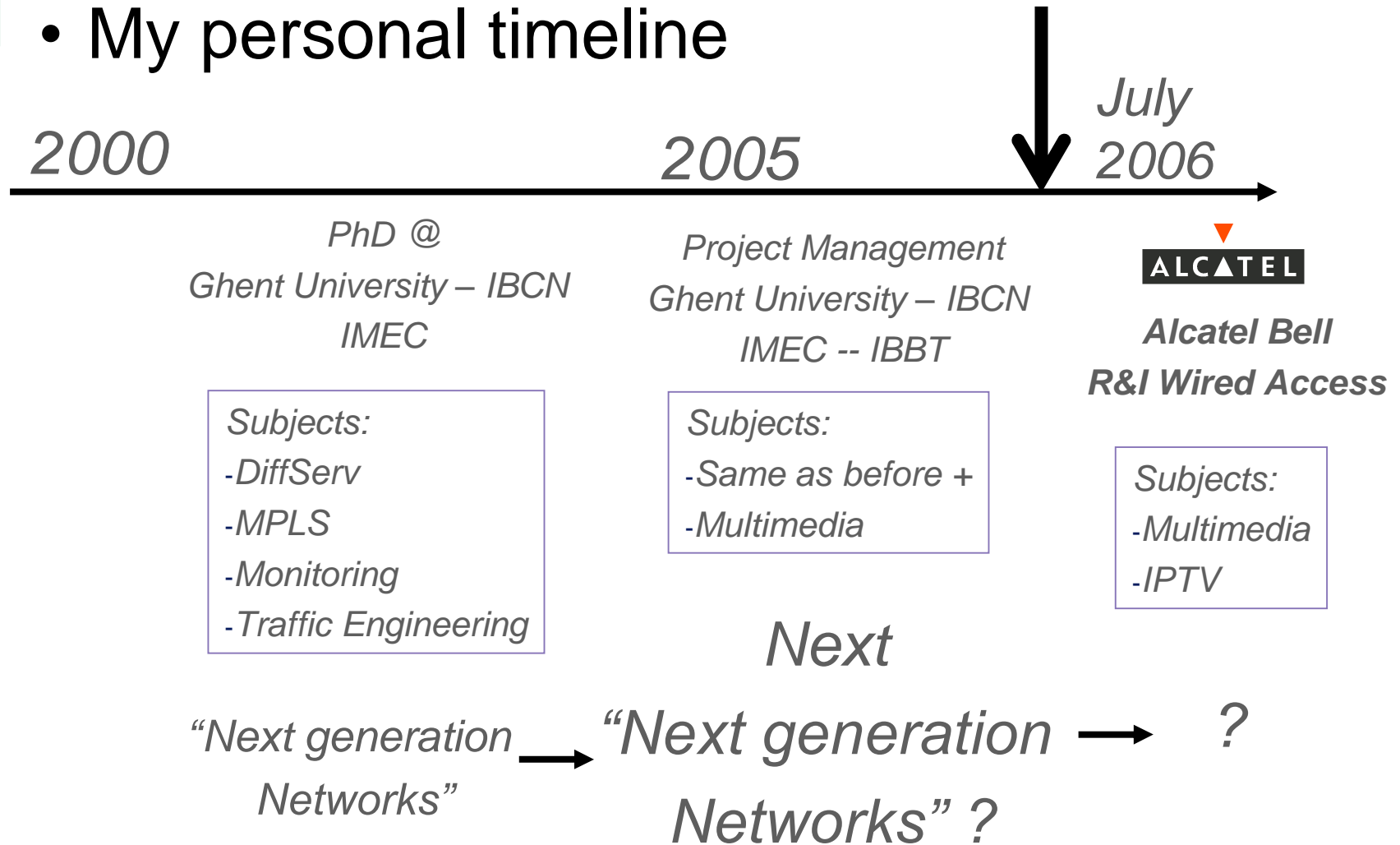
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Before we start...

- My personal timeline

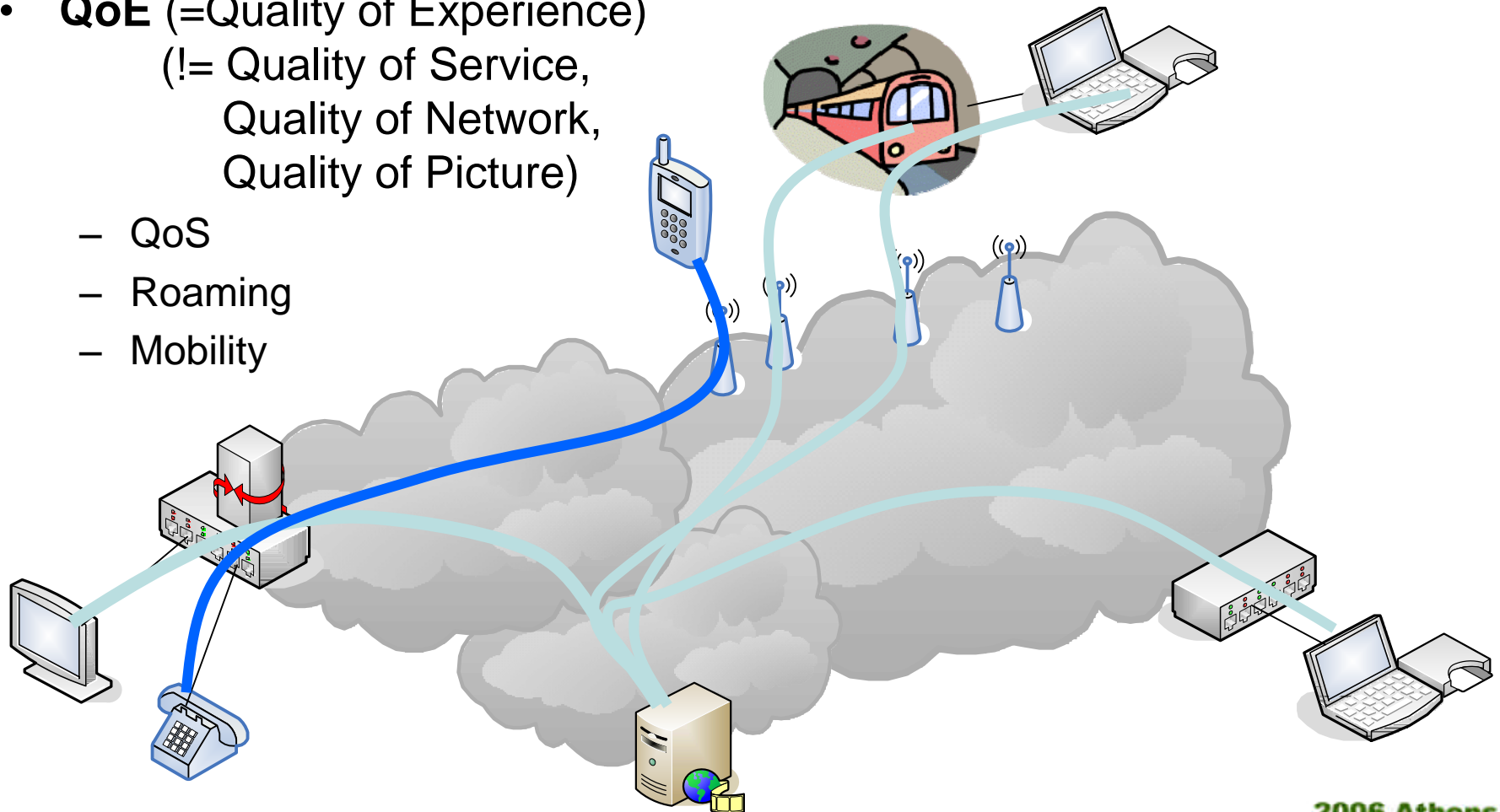




“Next Generation Networks”

My Service, Anywhere, Anytime

- **QoE** (=Quality of Experience)
 (!= Quality of Service,
 Quality of Network,
 Quality of Picture)
 - QoS
 - Roaming
 - Mobility





The “Good Old” Networks

Cable

*Twisted
Pair*

Cellular



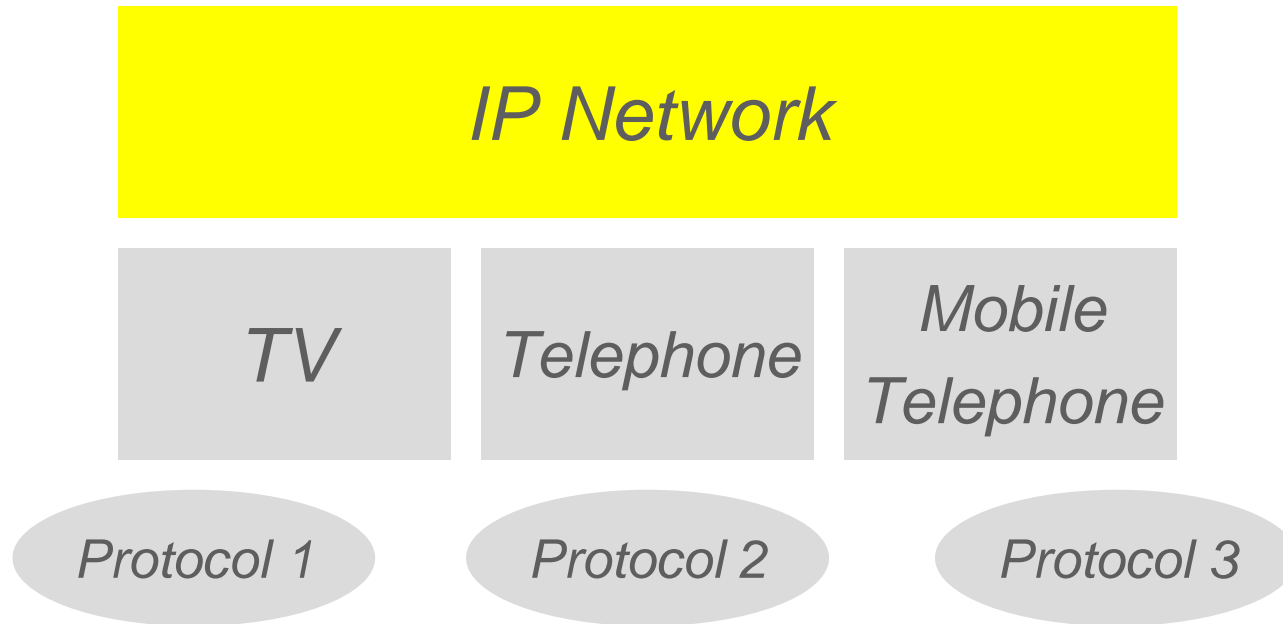
TV

Telephone

*Mobile
Telephone*



Phase 1: Convergence





Phase 2: Integration

IP Network

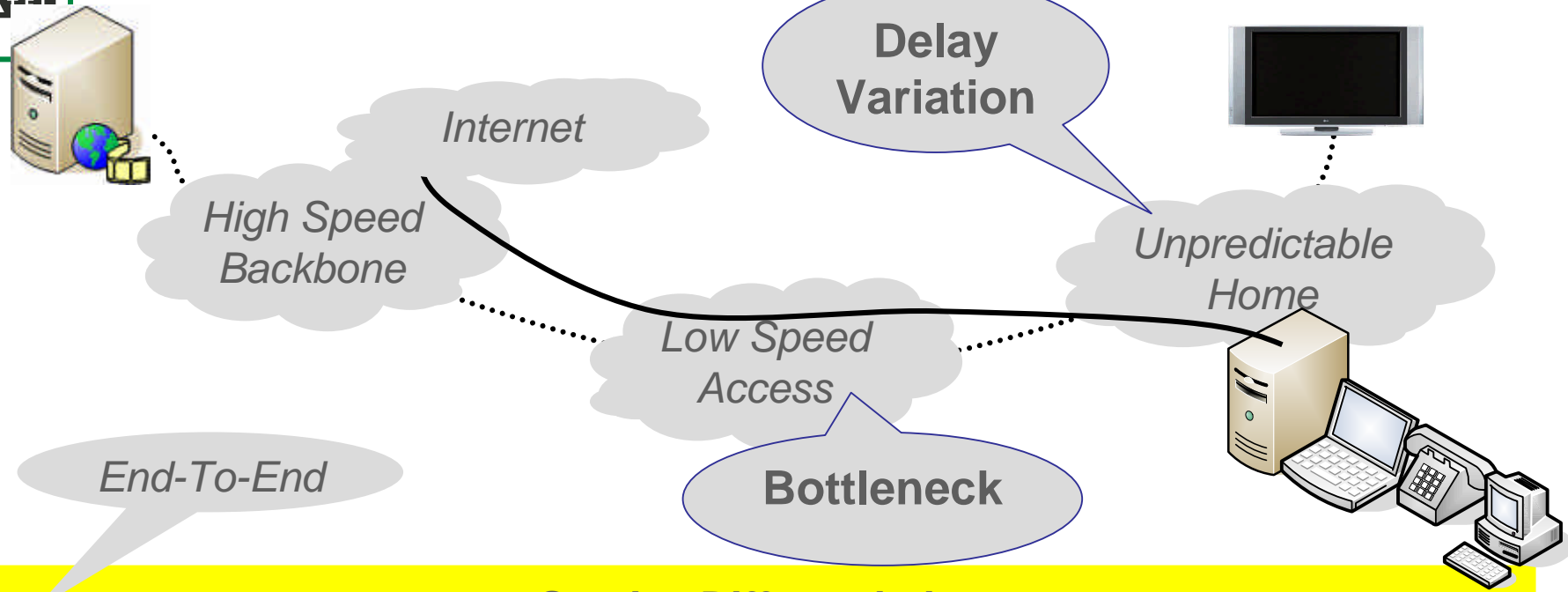
*IP Service
(IPTV, IPTelephony, ...)*

Protocol 1+2+3 ?





Phase 2: Integration



Service Differentiation

IP Network

*IP Service
(IPTV, IPTelephony, ...)*



Unequal Error Protection

- Not everything is equally important
 - Single service
 - Multiple Channels
 - Single packet stream (uniform treatment)

*Losing B-Slices
(less important data)*



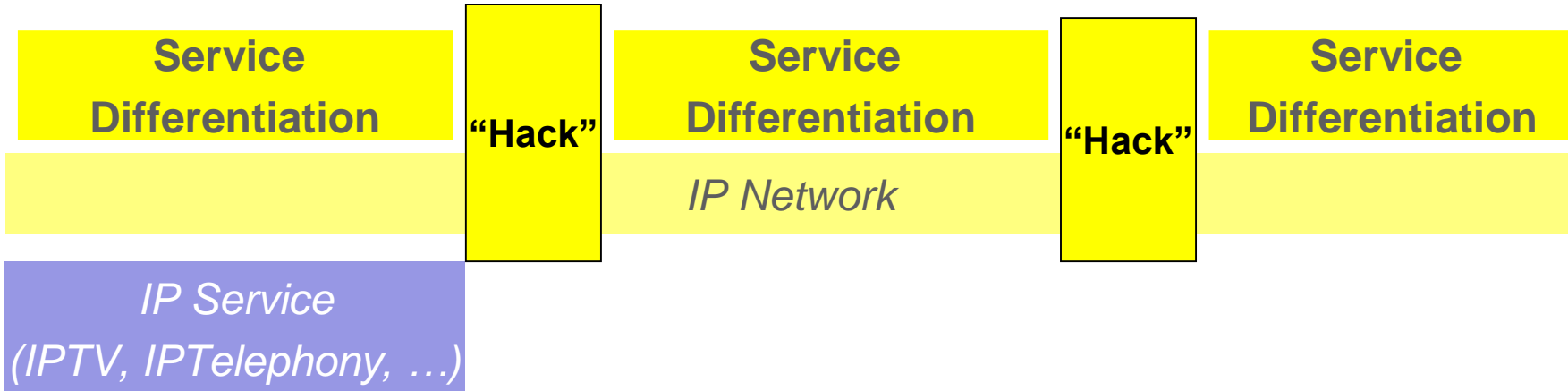
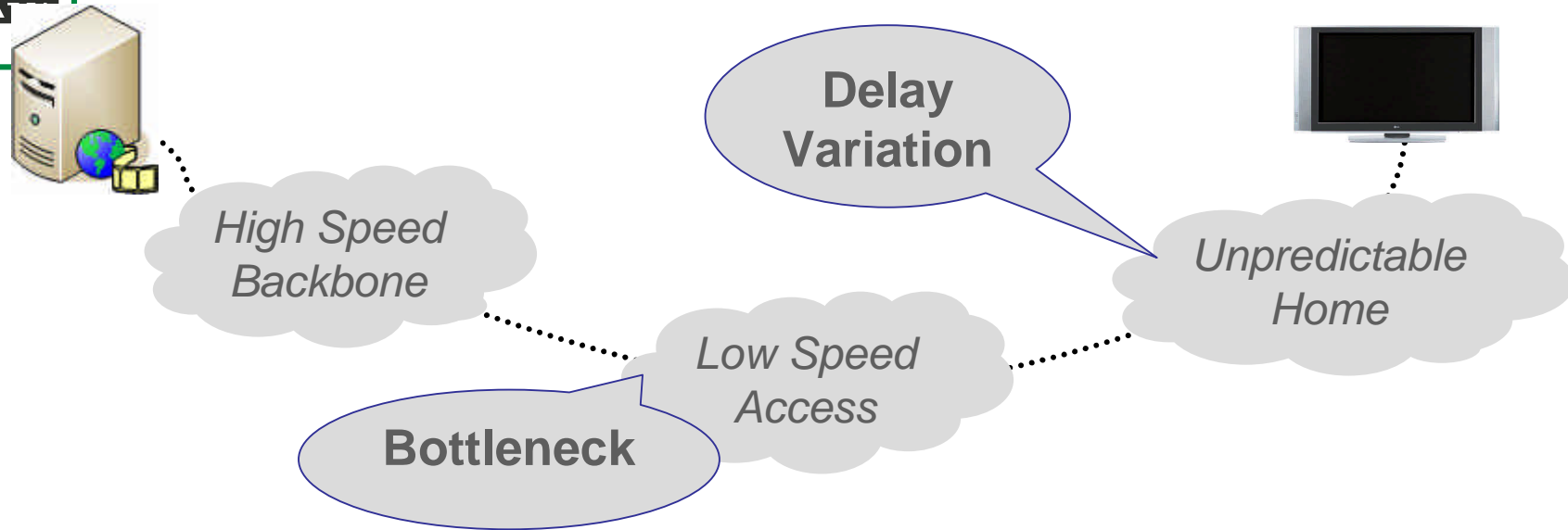
*Losing P-Slices
(important data)*





ALCA

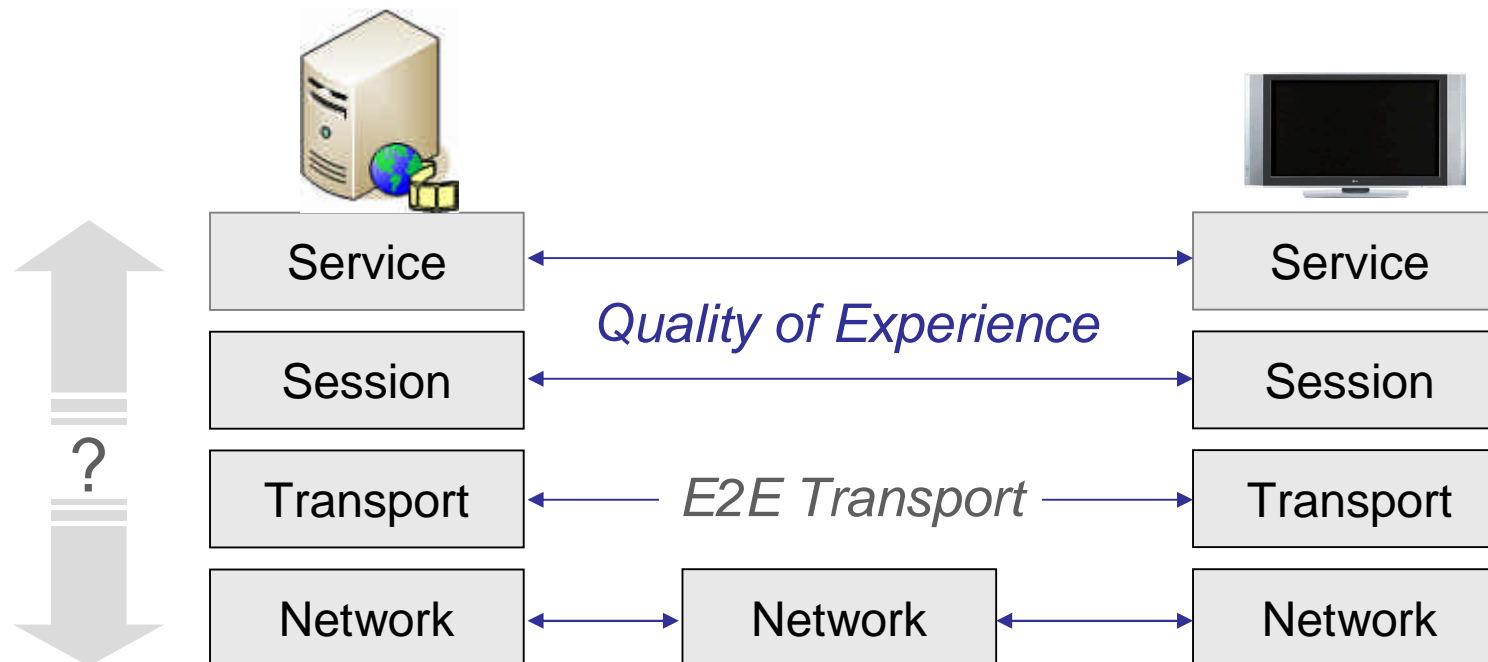
Phase 2: Integration





Component-based Networking Paradigm

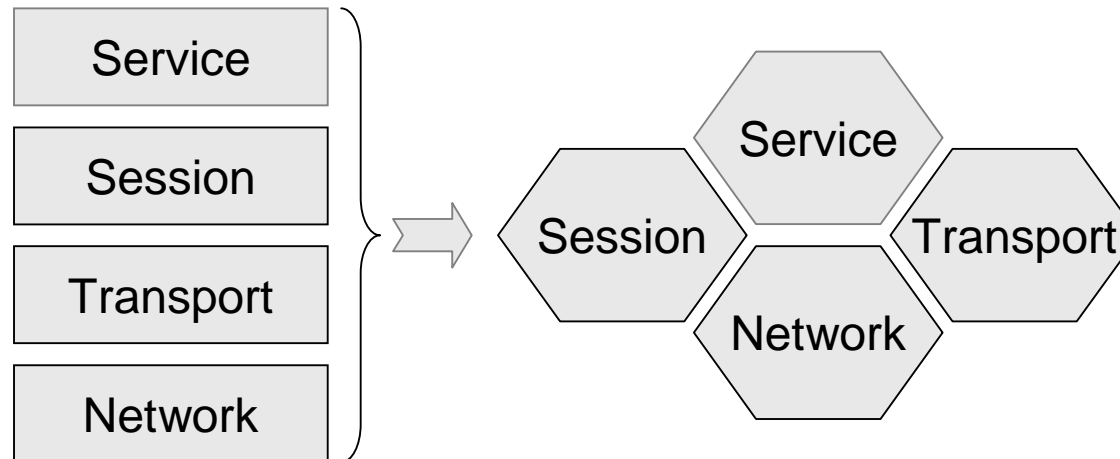
- Networks are traditionally layered
 - Easy to program
 - Throws away information → hard for applications





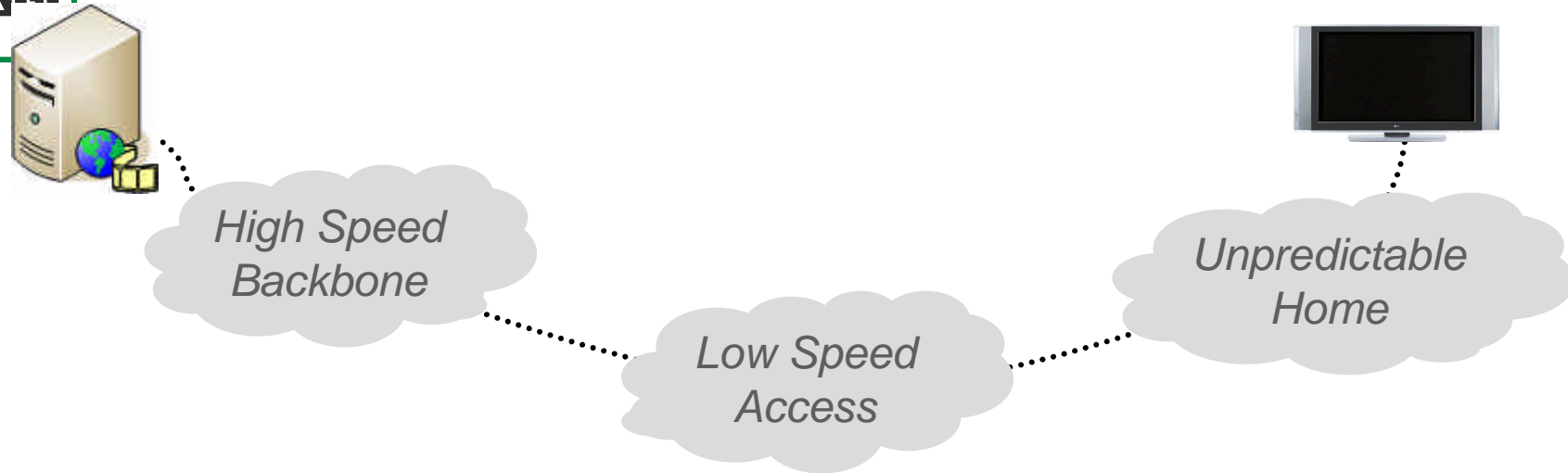
Component-based Networking Paradigm

- Networks are traditionally layered
 - Easy to program
 - Throws away information → hard for applications
- Component-based approach
 - Easy to program
 - Easier to integrate information
 - Easier to tune and to manage ?

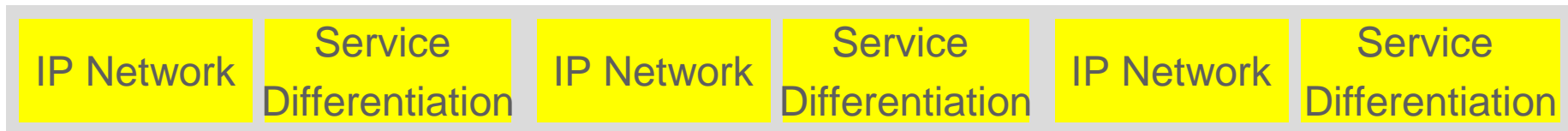




Phase 3: Component-based



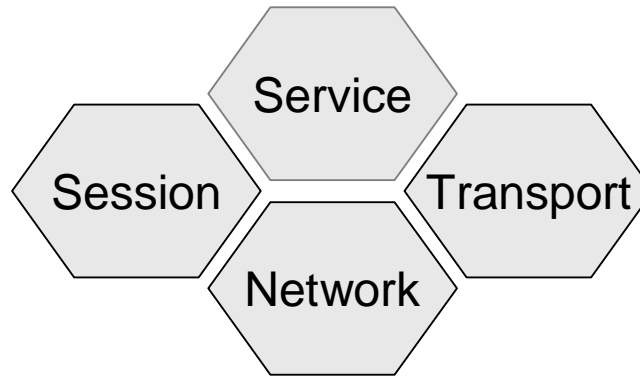
Component-Based Transport/Control Layer



*IP Service
(IPTV, IPTelephony, ...)*



The Next “Next Generation Network ?”



High Speed Backbone

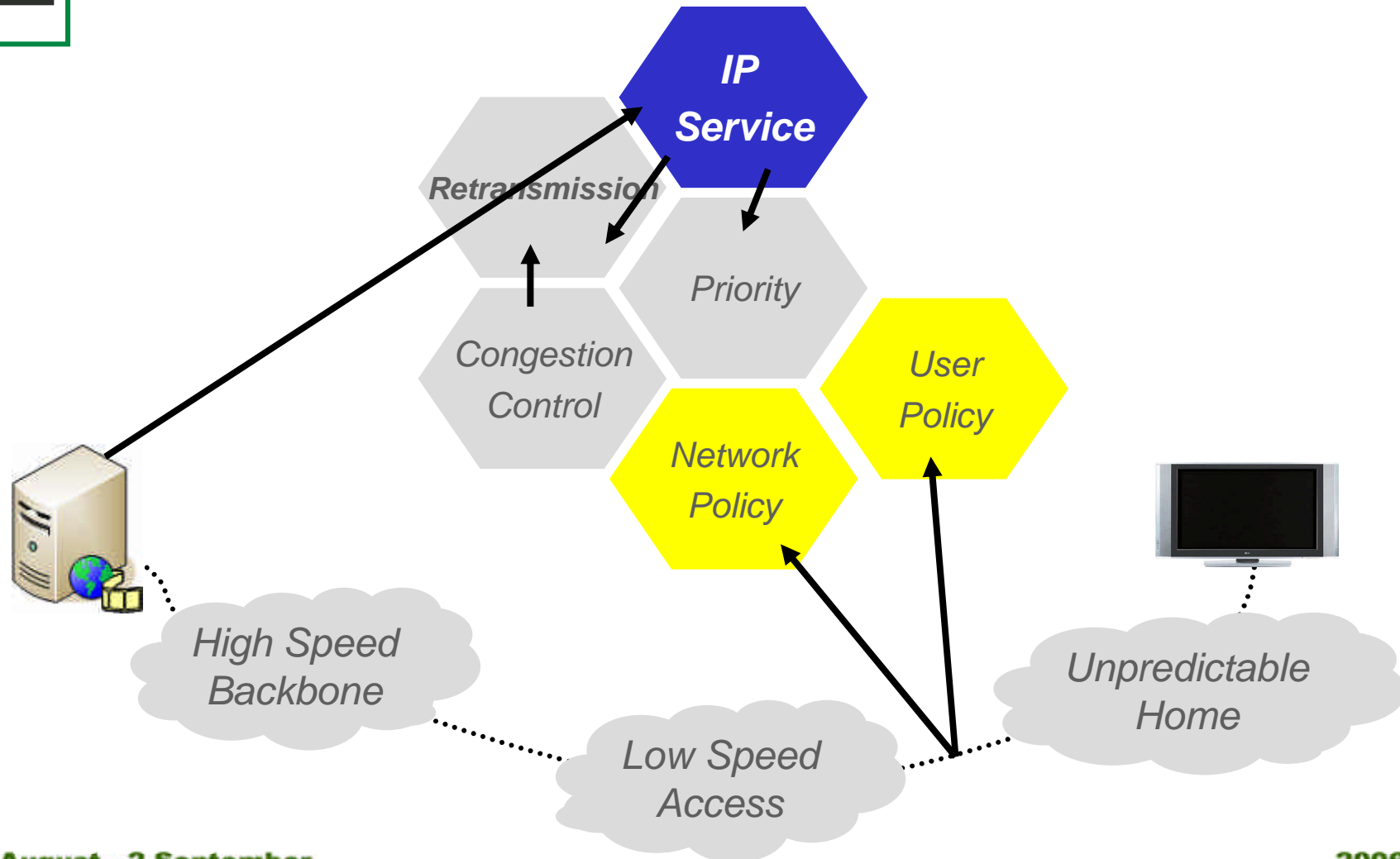


Unpredictable Home

Low Speed Access



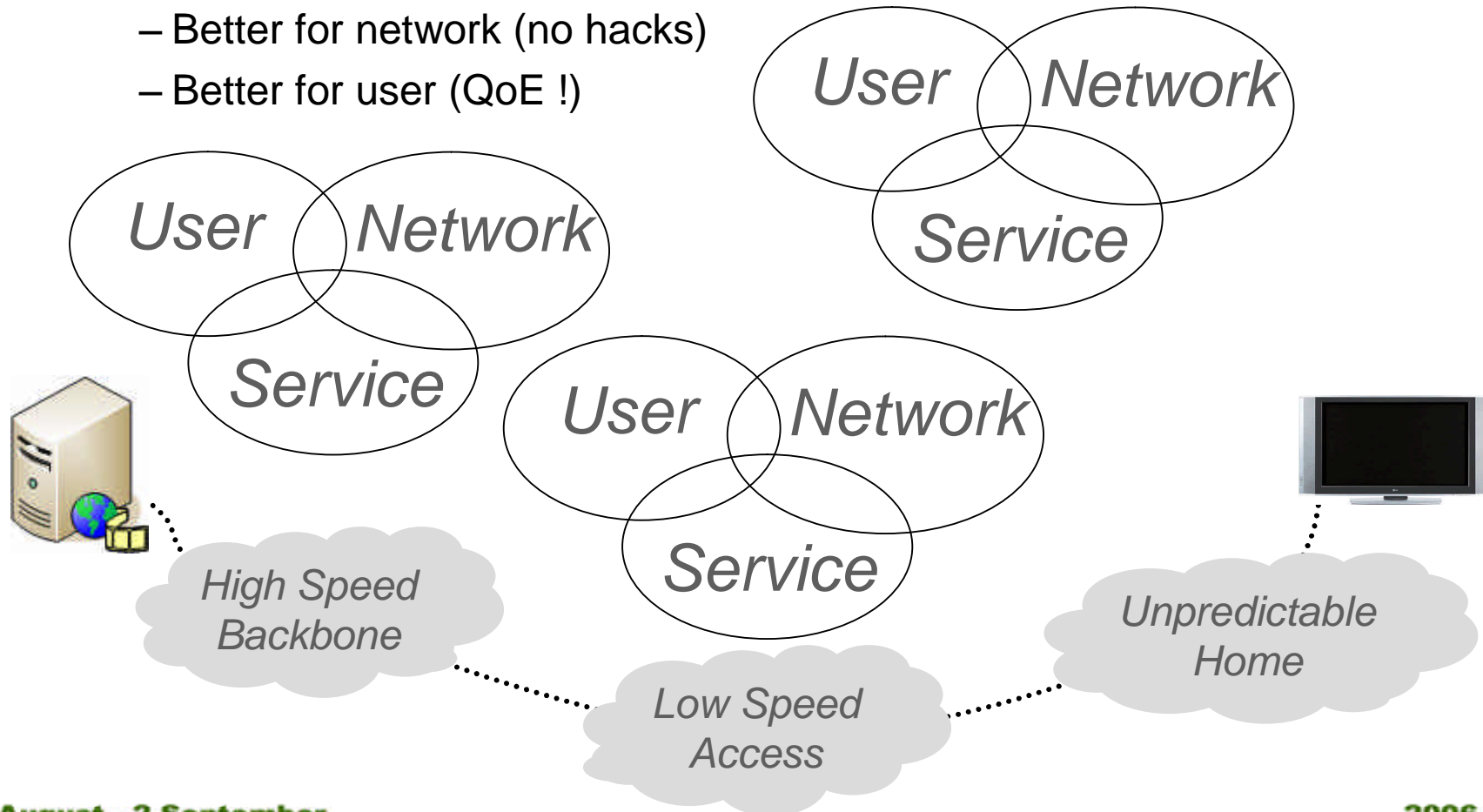
The Next "Next Generation Network ?"





The Next “End-to-End ?”

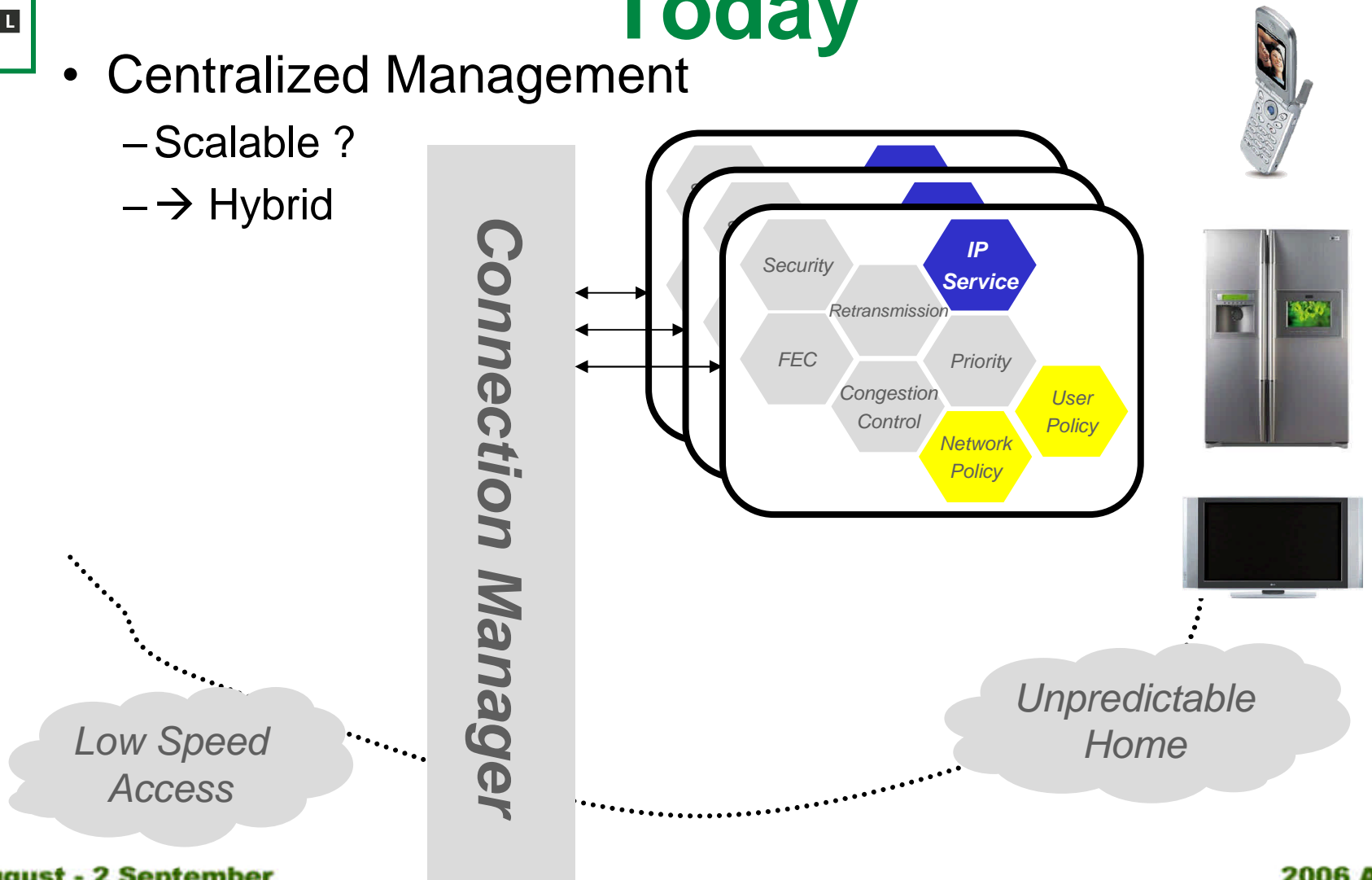
- Layers → Components
- End-to-End: Interacting Components
 - Better for network (no hacks)
 - Better for user (QoE !)





The Next “Next Generation” Today

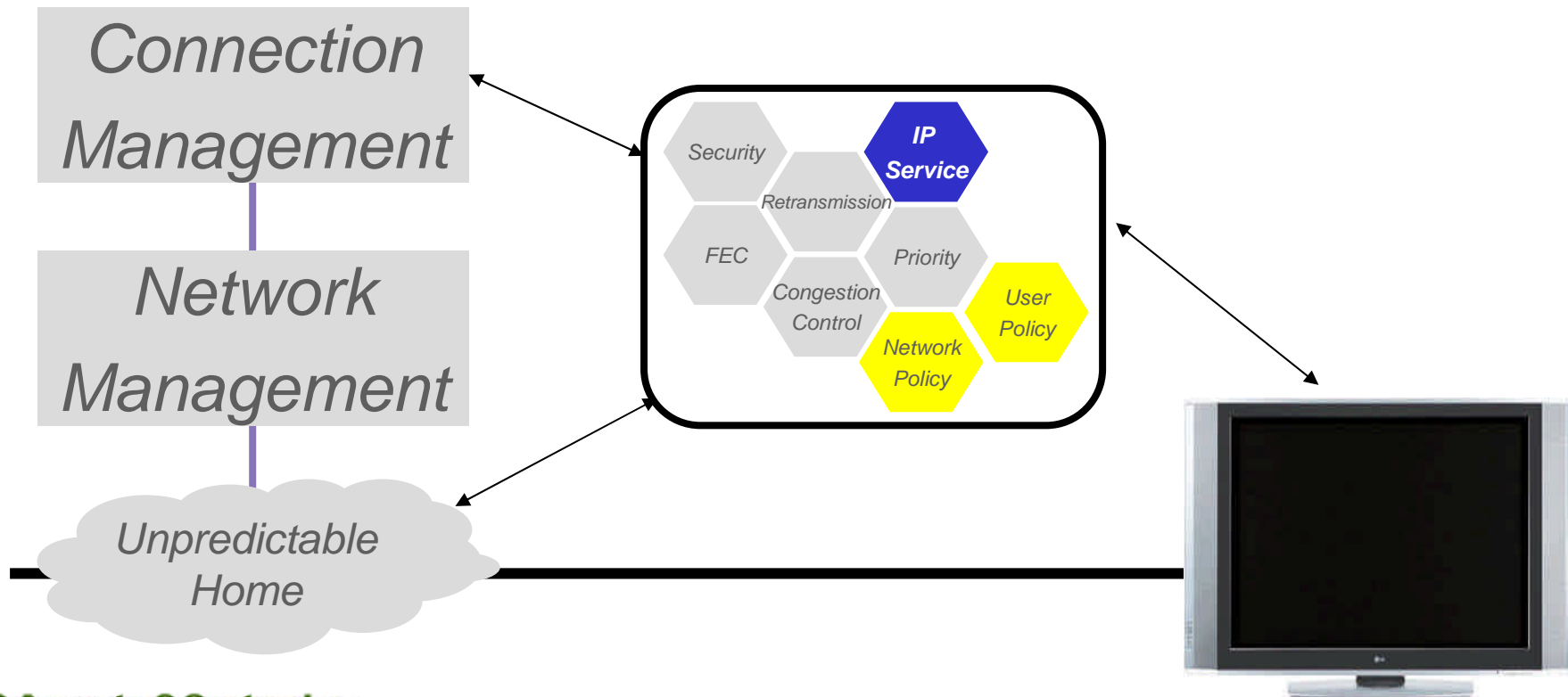
- Centralized Management
 - Scalable ?
 - → Hybrid





The Next “Next Generation” Today

- Management: Policy delegation to network AND devices
 - Confined environment → more centralized control possible
 - But devices still know best how to adapt





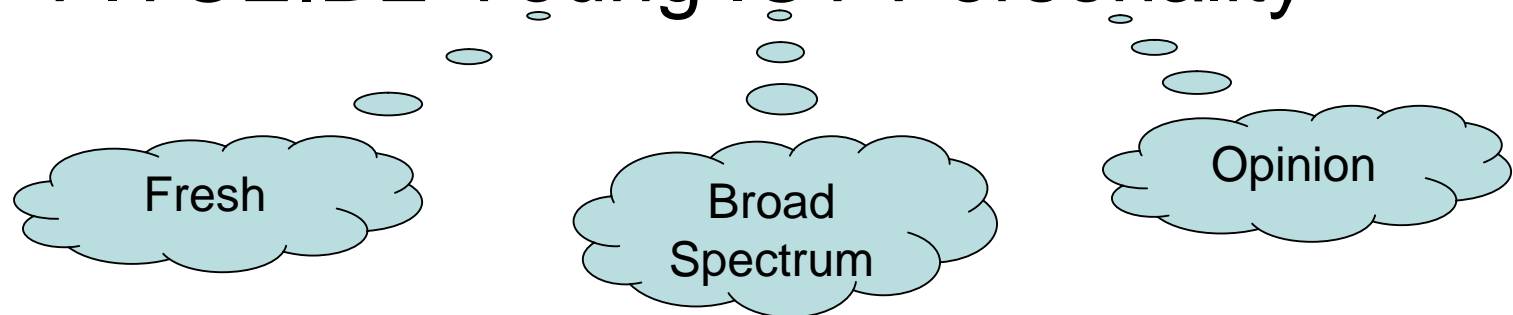
Conclusion

- Next Generation Networks
 - Service Differentiation, User Differentiation, ...
 - Layer Violations
- Next “Next Generation Networks”
 - Layers → Components
 - Use what you need
 - Adapt to the circumstances
- Lots of things to tune
 - Map to Policy-based Management
 - First step in confined environment
 - → Hybrid Policy-based Management



A special word of thank for the Belgian FITCE Chapter

FITCE.BE Young ICT Personality



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