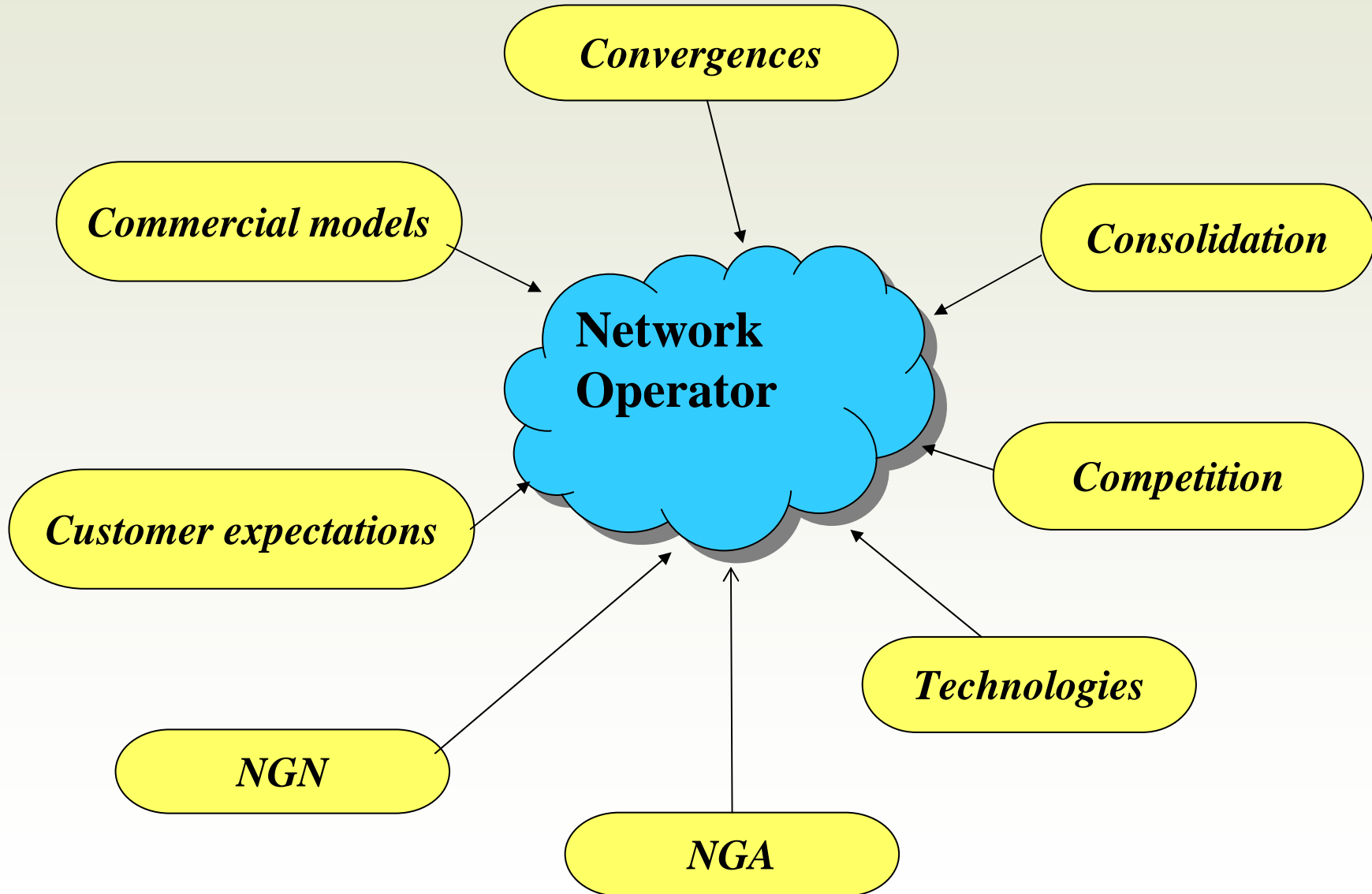


**What's driving the adoption of  
NGN & NGA – and how do the  
key messages from  
Networks2008 relate to this ?**

**Andy Valdar**

**Professor Telecommunications Strategy**



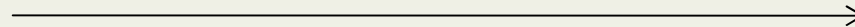
# Convergences

# TV Delivered in Many Ways

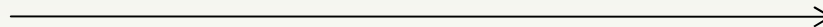
Terrestrial & Satellite



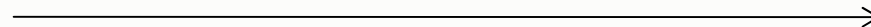
Cable



IPTV



Cellular mobile



Internet



# All devices being digital and supported by IP:



## Drivers For Integration

### *Running fewer Platforms:*

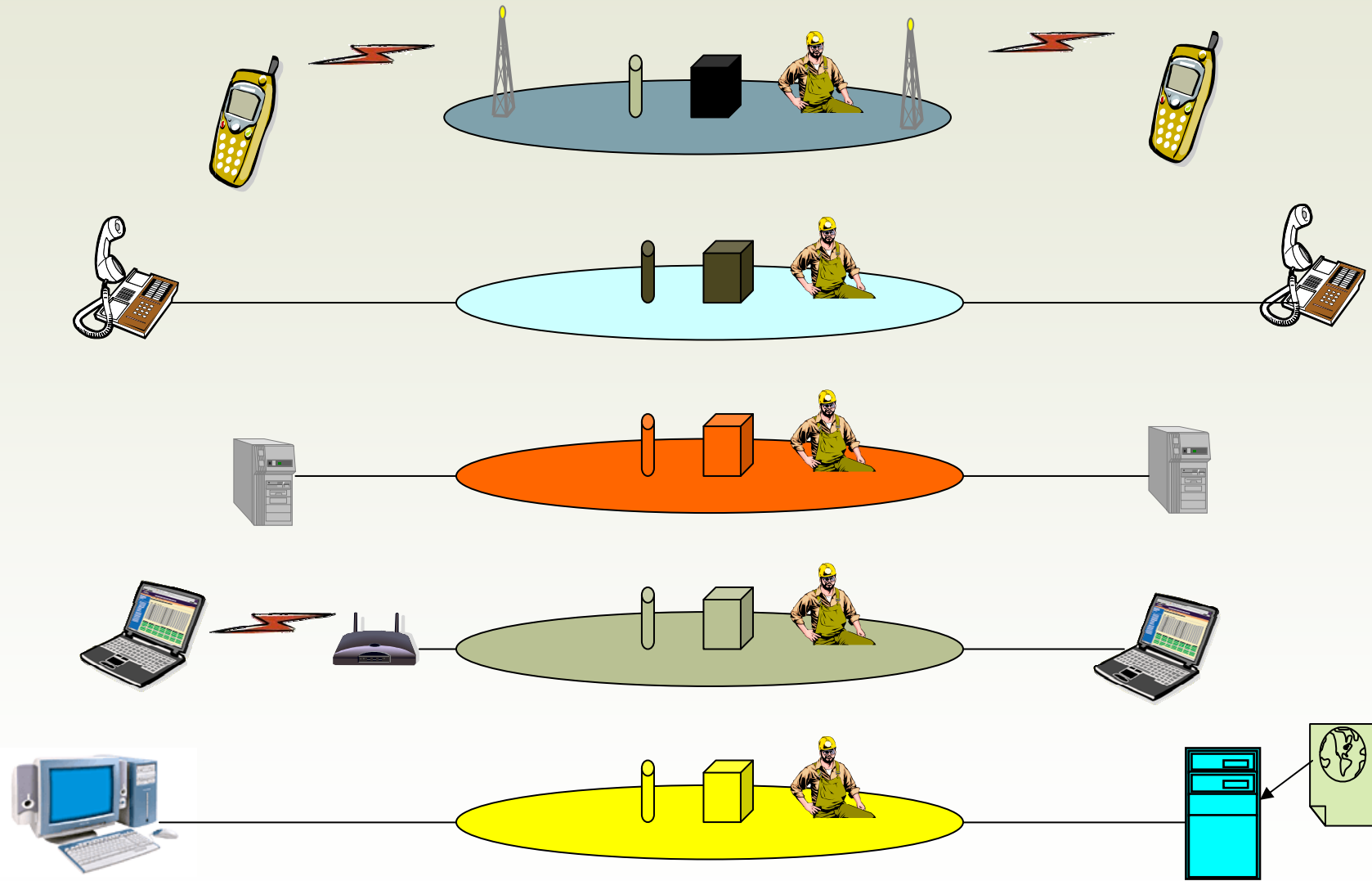
- Operational savings
- Service management savings
- Network economies of scale running larger integrated platforms
- Network resource sharing

### *Technical Advantage:*

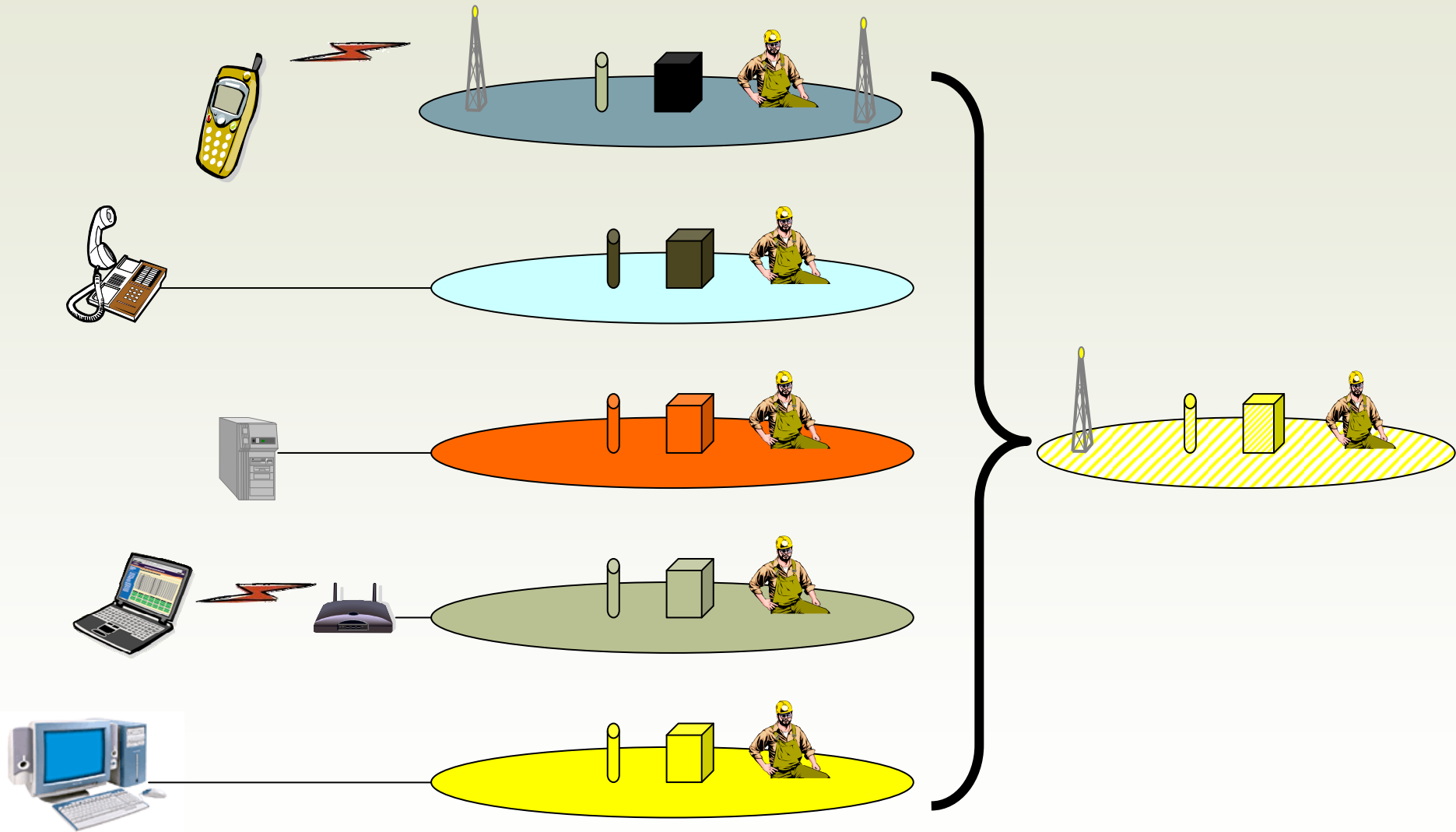
- The ability to provide new converged service features as a result of integration of the control or signalling layers

## **Drivers For Service Convergence**

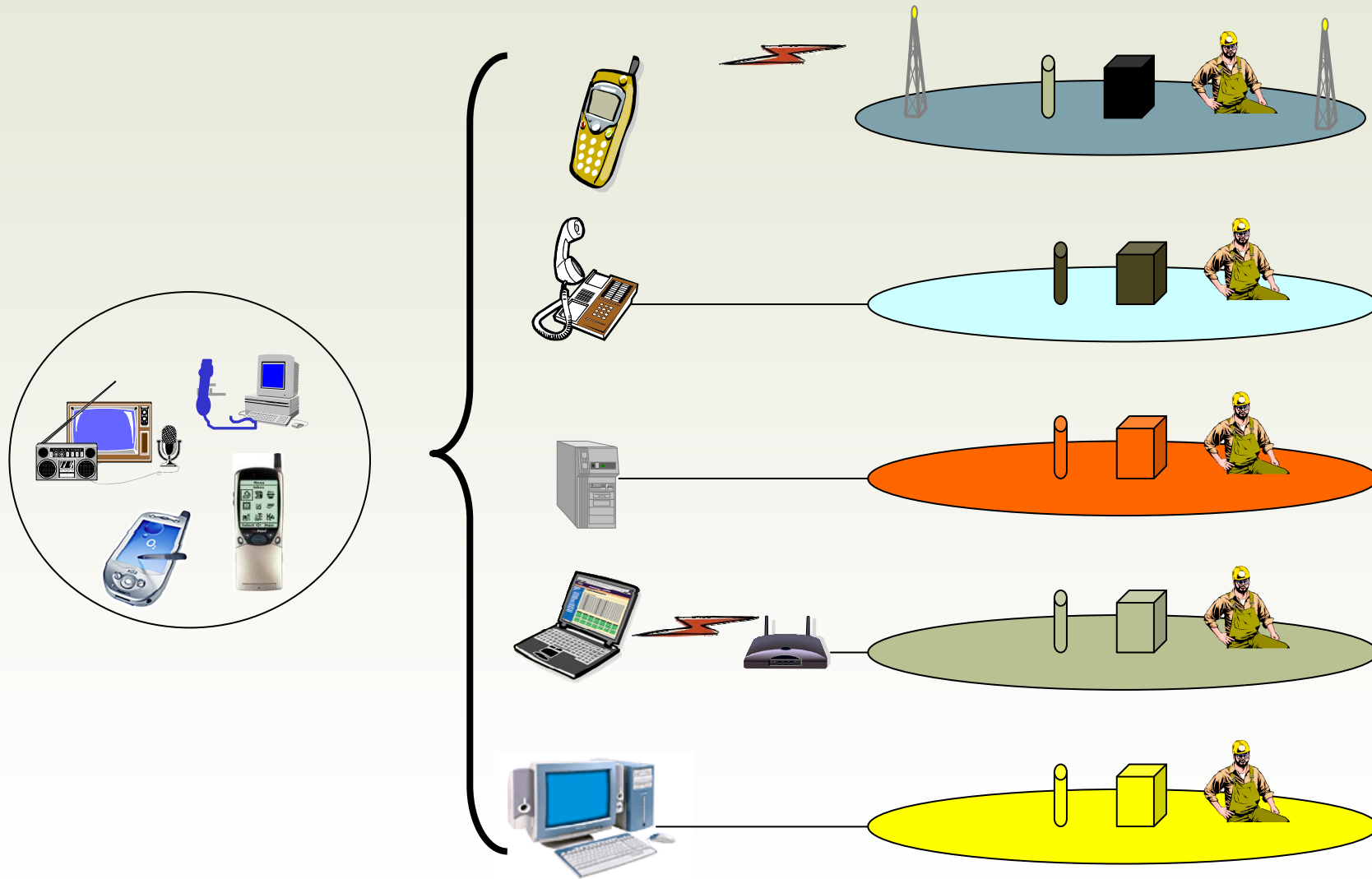
- New service features – and new revenues
- Service differentiation from competitors
- Exploitation of users' integrated terminals



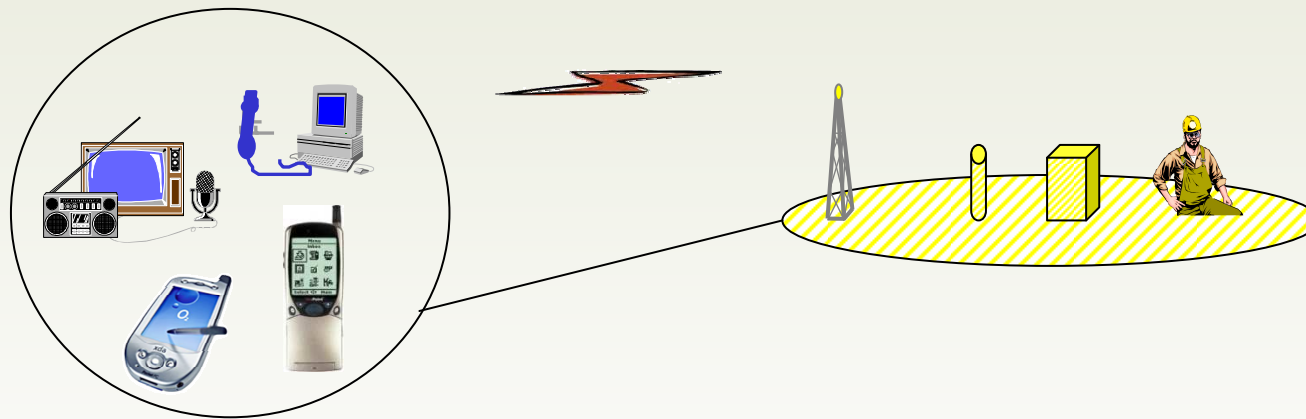
# Many Platforms



# Network Integration



# Terminal Integration



# The Ultimate Integration .....or vision?

# Technologies

## Technologies

### 1. Modern IT capabilities increasing exponentially:

- transistor density in integrated circuits
- bit density in magnetic storage media
- communications channel capacity (wired, optical & wireless)

due to progress in micro-fabrication, micro-magnetics, & optics

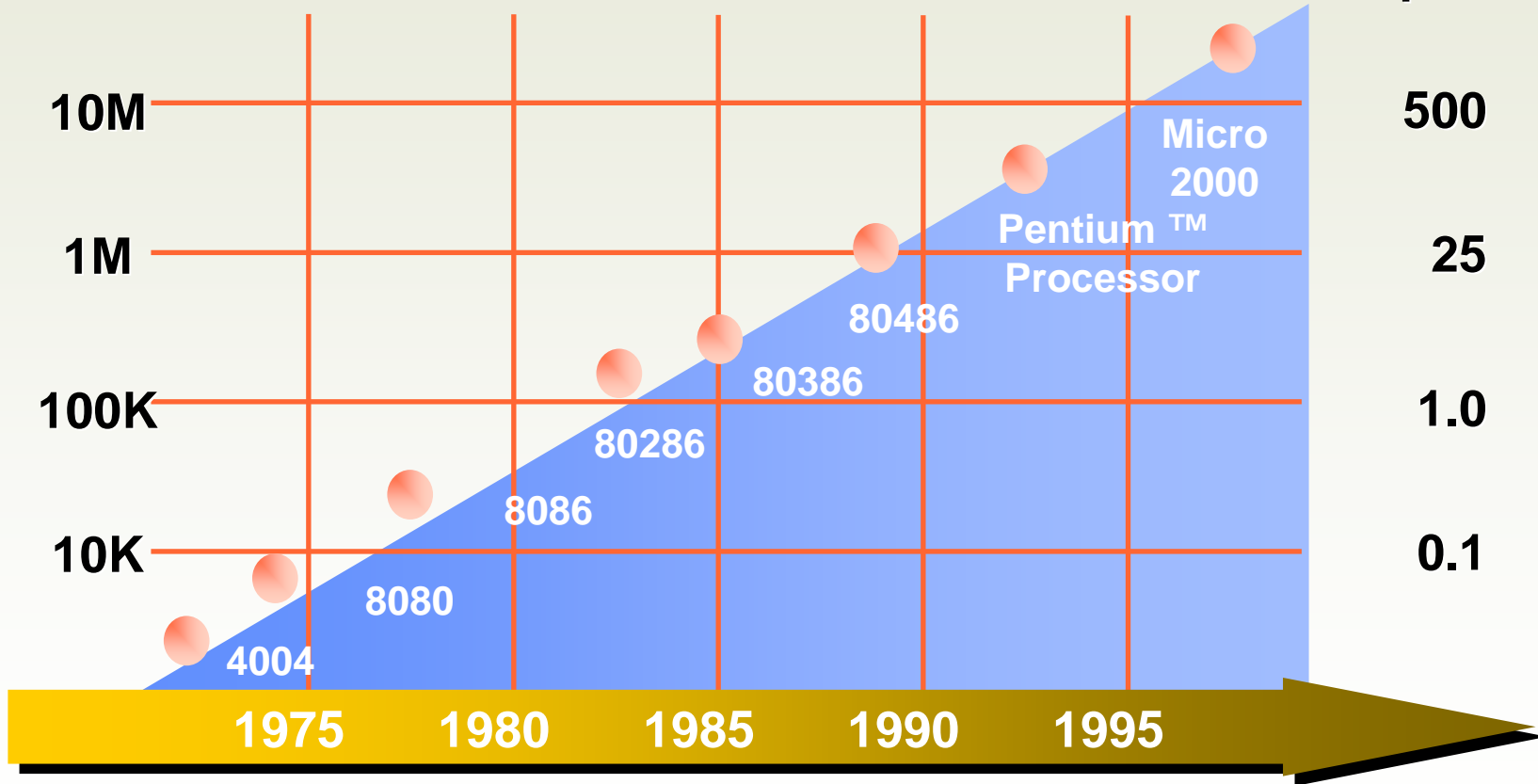
.....*leading to the well-known Moore's Law*

.

# Moore's Law

Transistors

Mips

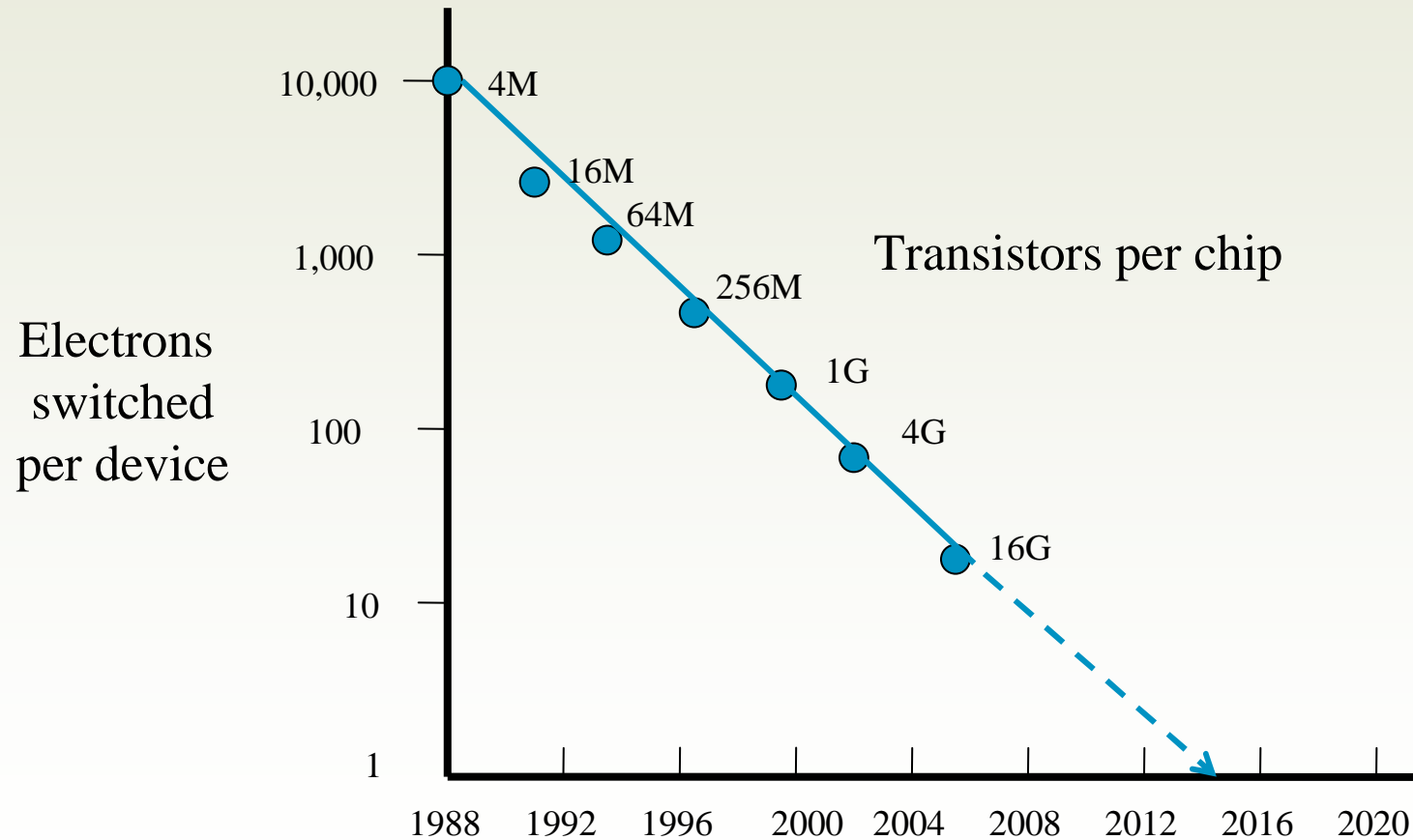


## But How Far Can We Go With The Transistor?

As the basic building block of electronic processing and storage gets smaller (i.e. approaching the nanometre region):

- Trend is toward less than one electron switched per device operation!
- Magnetic domains for bit storage will lose stability relative to the thermal fluctuations at room temperature;
- Ever thinner oxide gates will result in larger leakage currents & ever larger power consumption!

# Moore's Law: Electrons Switched Per Device Per Operation

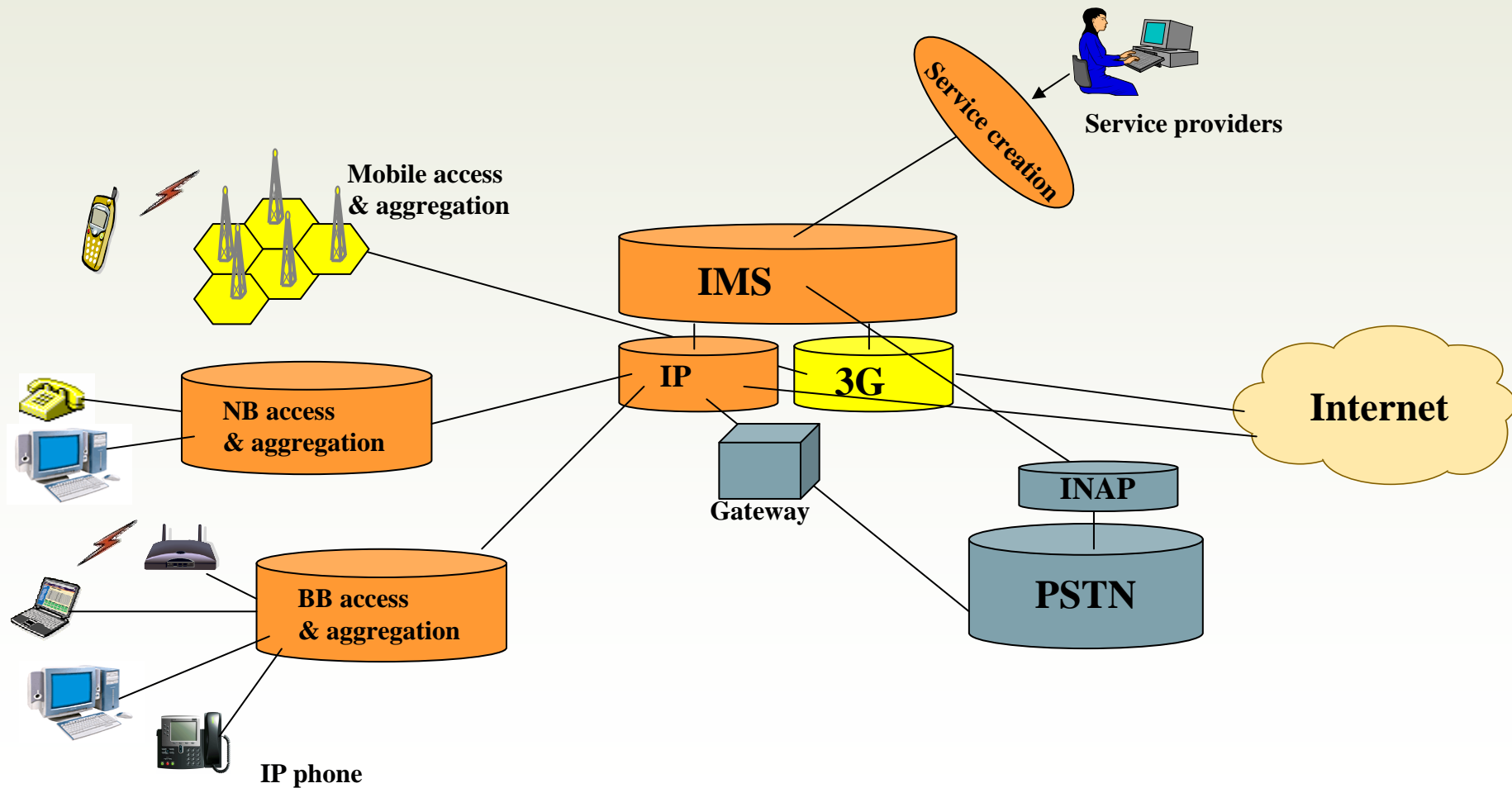


## The Challenges Ahead

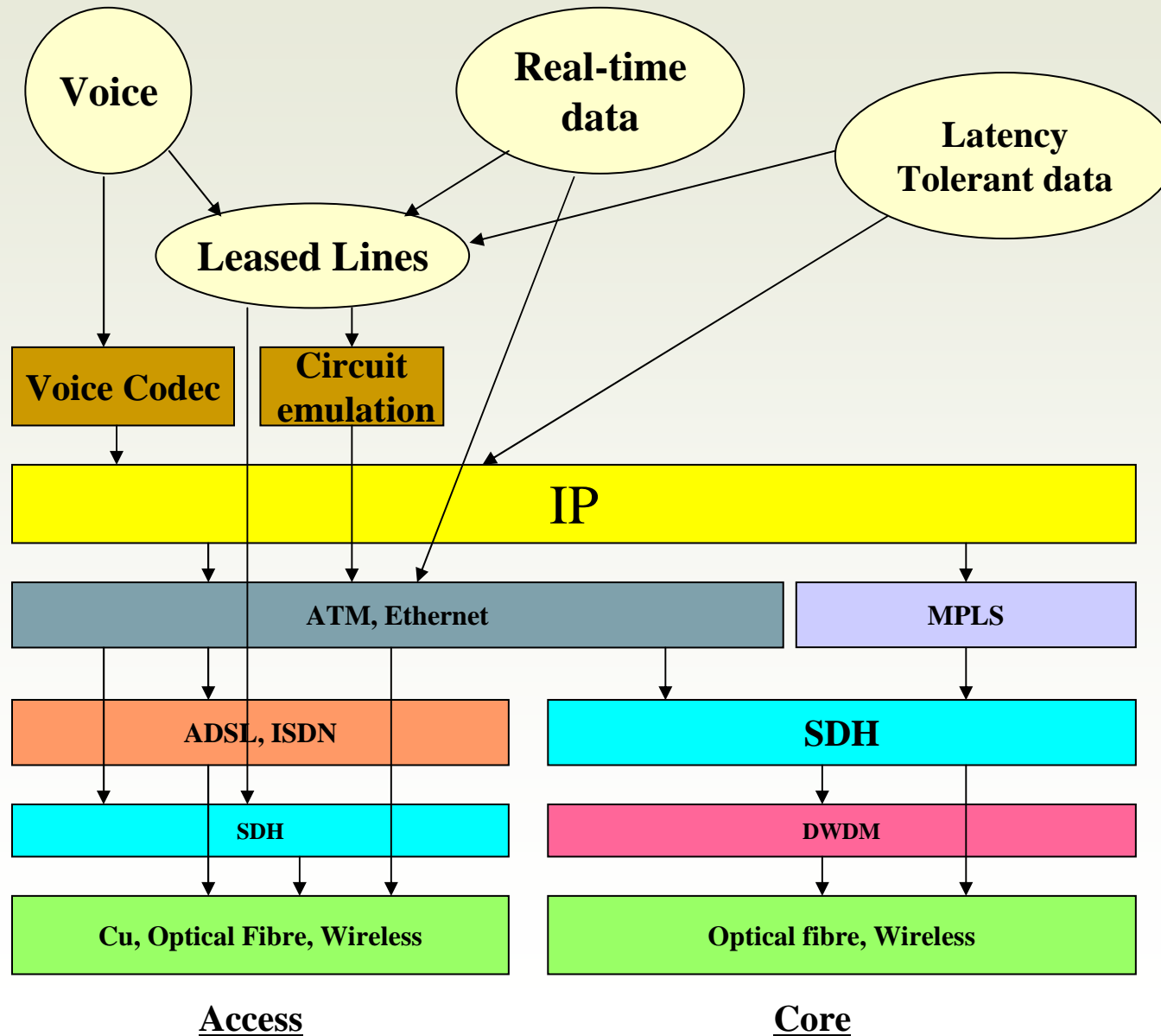
- Nanotechnology to replace CMOS-based devices
- Power management
- Integration
- Reliability
- Network design – need for new architectures
- Software engineering

**NGN**

# Next-Generation Network Concept



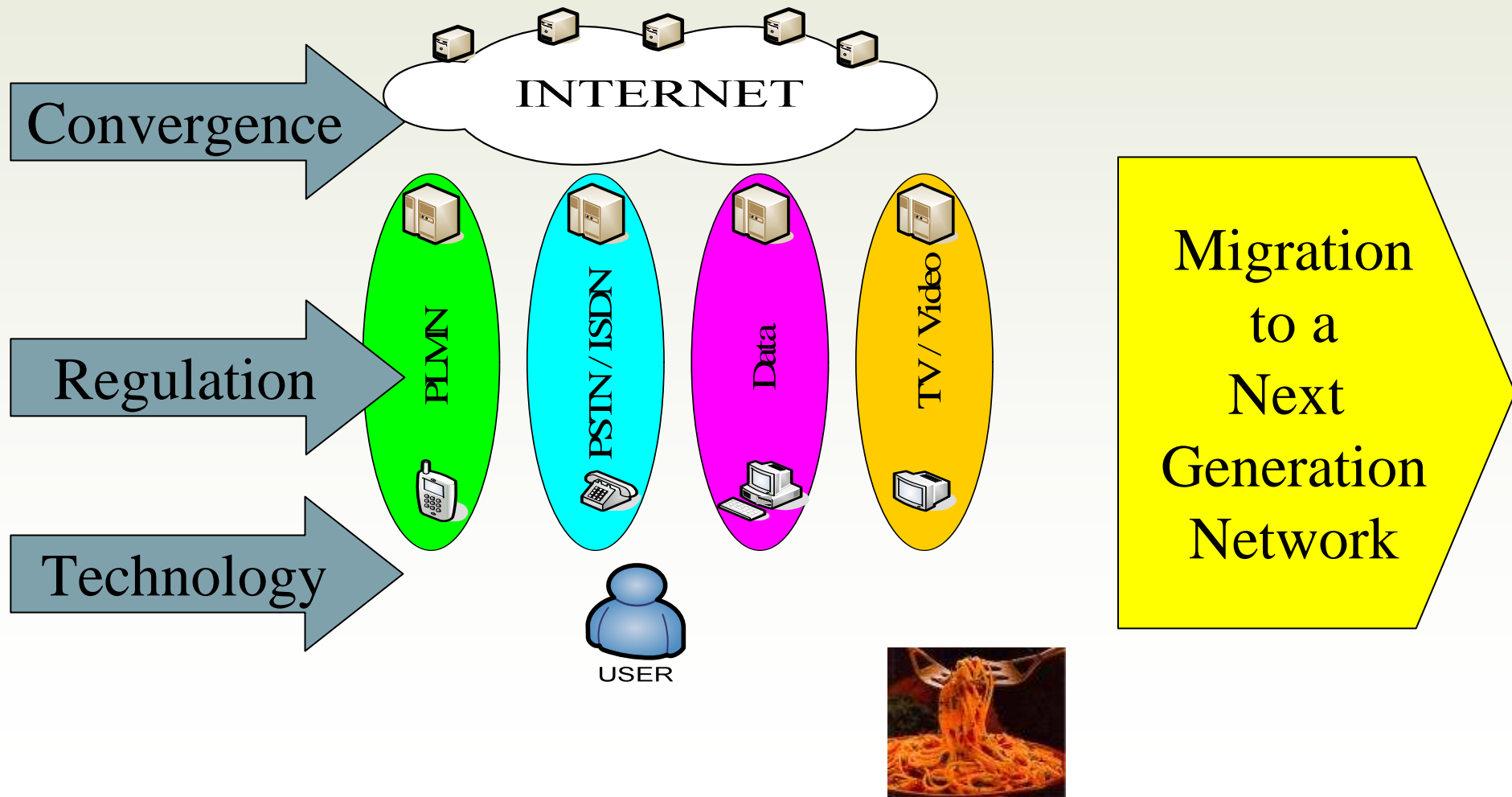
# Logical Architecture For NGN



# Drivers For NGN

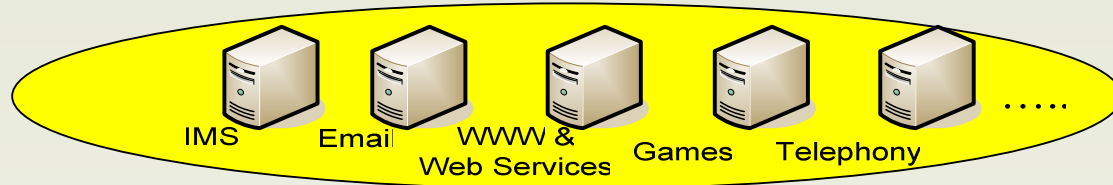
# A Key Driver – Network Transformation

## Today's Single Service Networks



# Transformation To A Next Generation Network

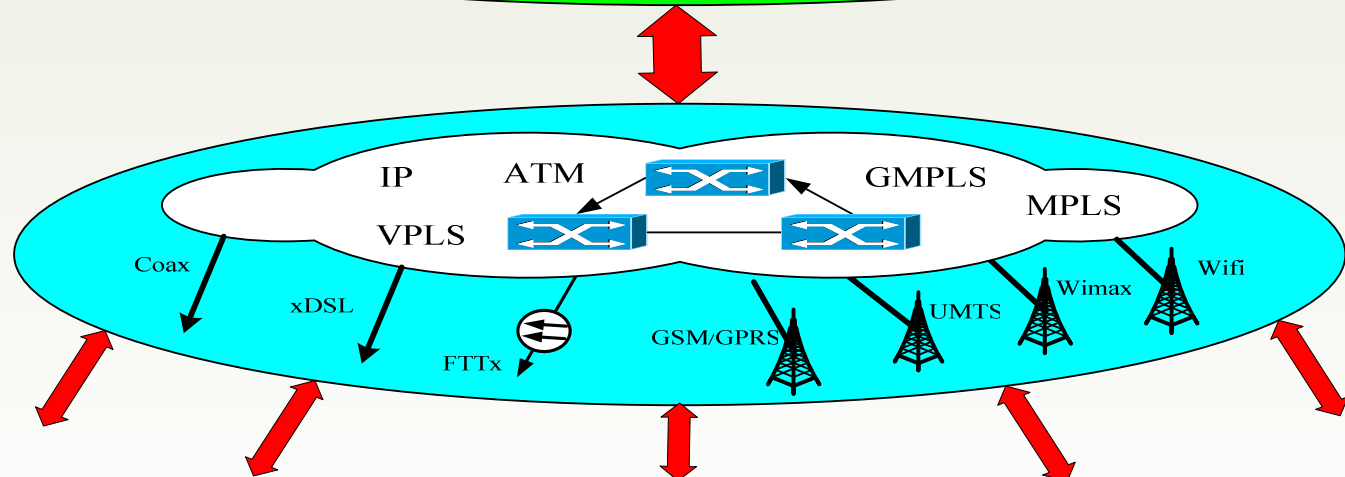
Content, Application and Service Layer



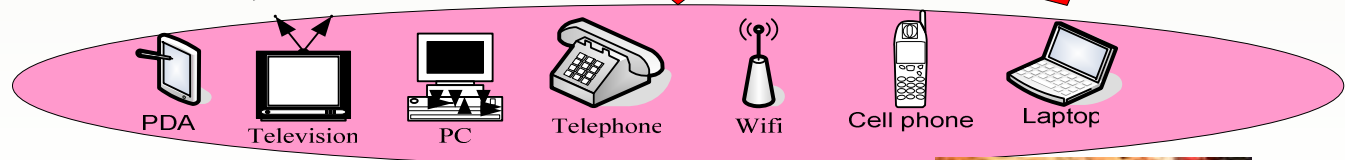
Network Control Layer



Network CORE & ACCESS



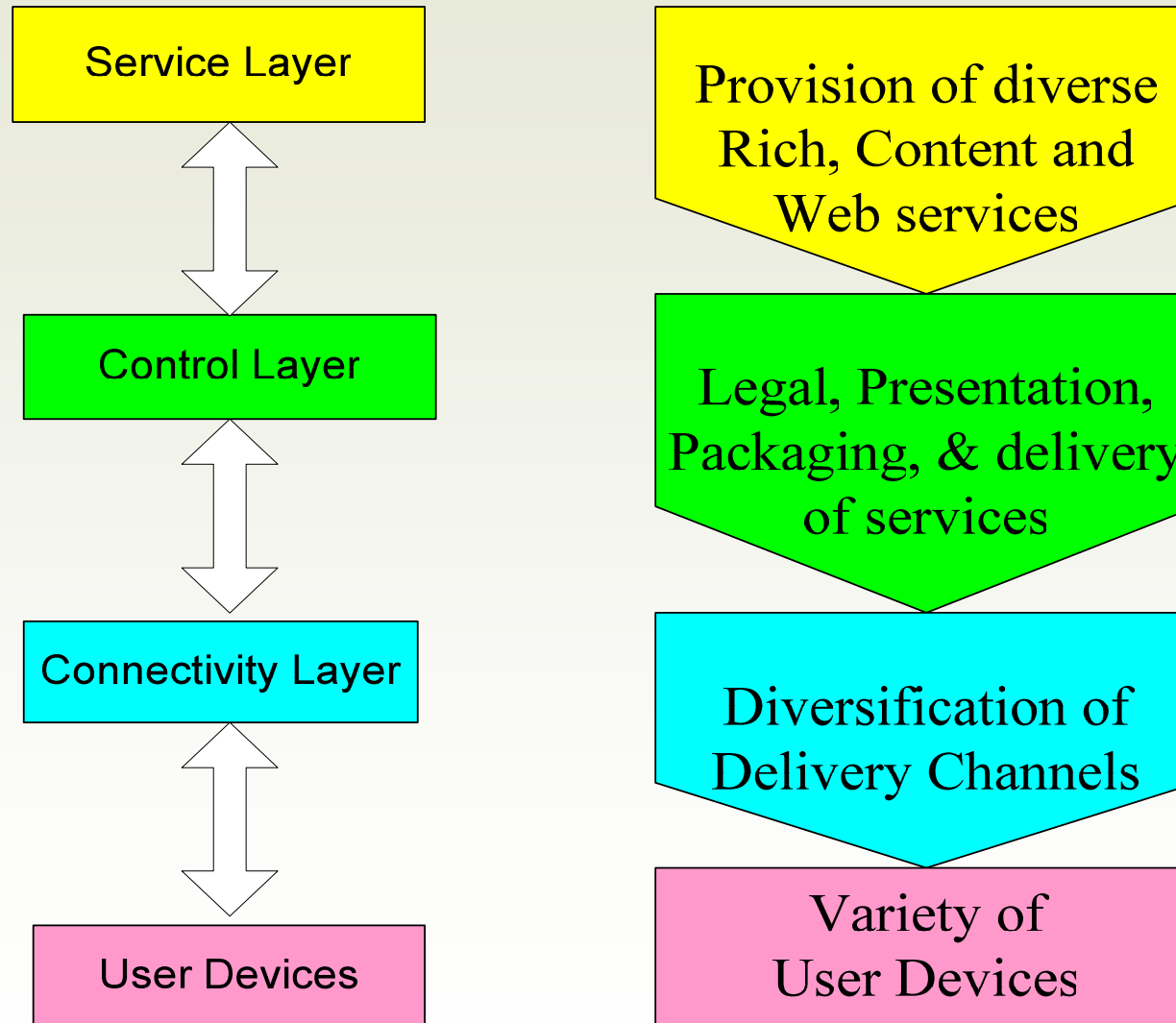
Devices @Home & On the Move



  
USER EXPERIENCE



# Value Chain Transformation



Where each Layer can evolve independently

# The Key Economic Drivers For An NGN

- Common multi-service platform (hence fewer platforms)
- Use of VOIP (hence convergence of voice & data)
- Multimedia control
- Broadband access
- Converged services
- Simplified network (hence fewer boxes)
- Layered architecture

Key:

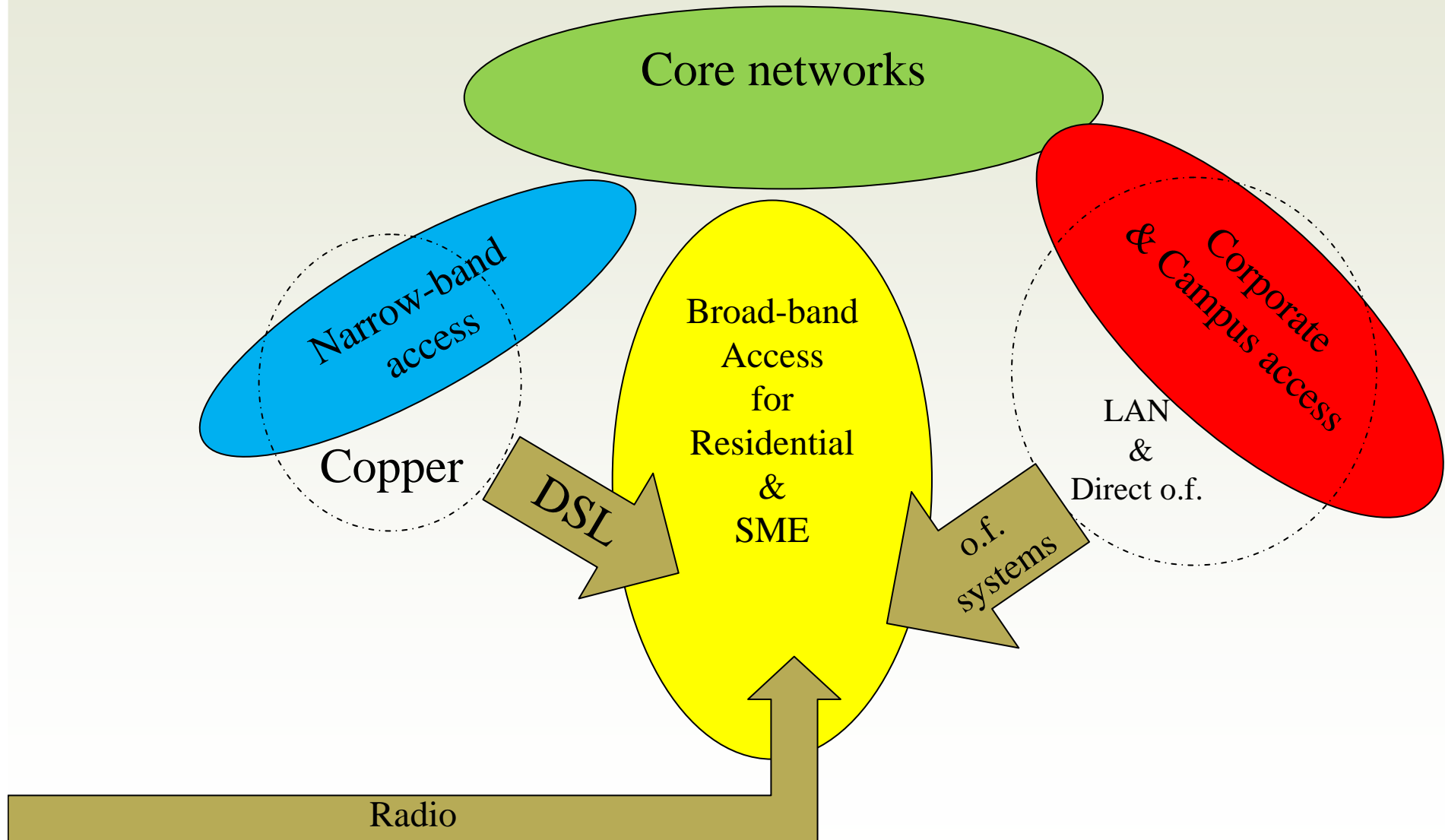
Red: mainly cost drivers

Blue: mainly revenue drivers

# Drivers for NGA

- Increasing demand for bandwidth by consumers
- Operational costs
- Competition
- Political pressure

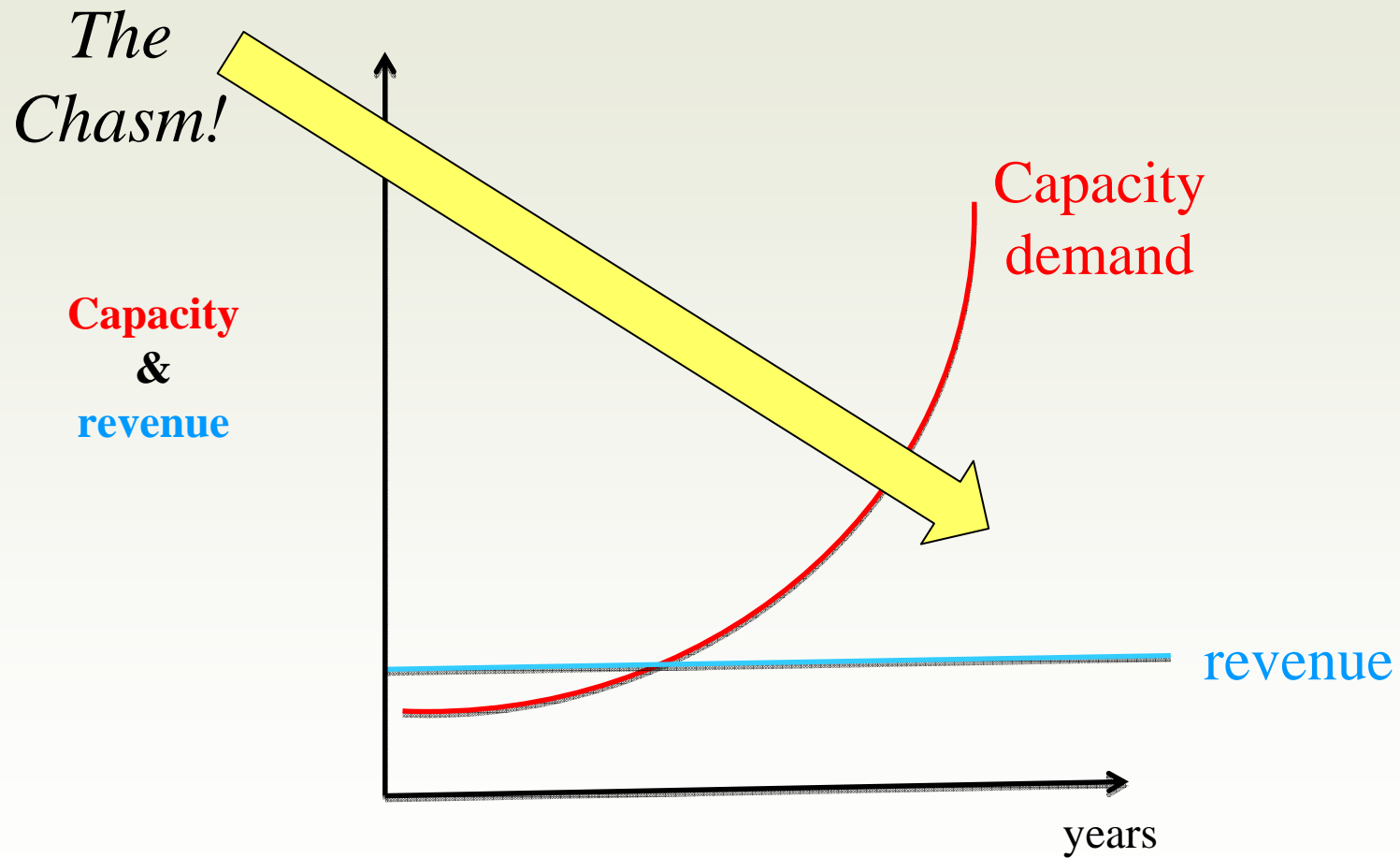
# The Next Step



# Commercial models

*i.e., who does what to whom – and who is paying for it?*

# The Challenge



# Customer Expectations & Behaviours

*.....What services will they want and pay for?*

## Some Examples of Consumer Behaviour

### Media Stacking

- 40% consumers use mobile phones while watching TV
- 40% consumers watch TV while surfing the web.

### Mobile Broadband: increasingly popular way of accessing the Internet - consumers with mobile broadband

- 75% use it at home
- 18% use it at work
- 27% use it elsewhere or on the move

## Some Examples of Consumer Behaviour-2

### TV on the Net

27% of 15-24 year olds watch TV programmes over the Internet

24% of 15-24 year olds watch video clips over the Internet (18% CAGR)

BBC i-player: 700,000 daily viewing requests

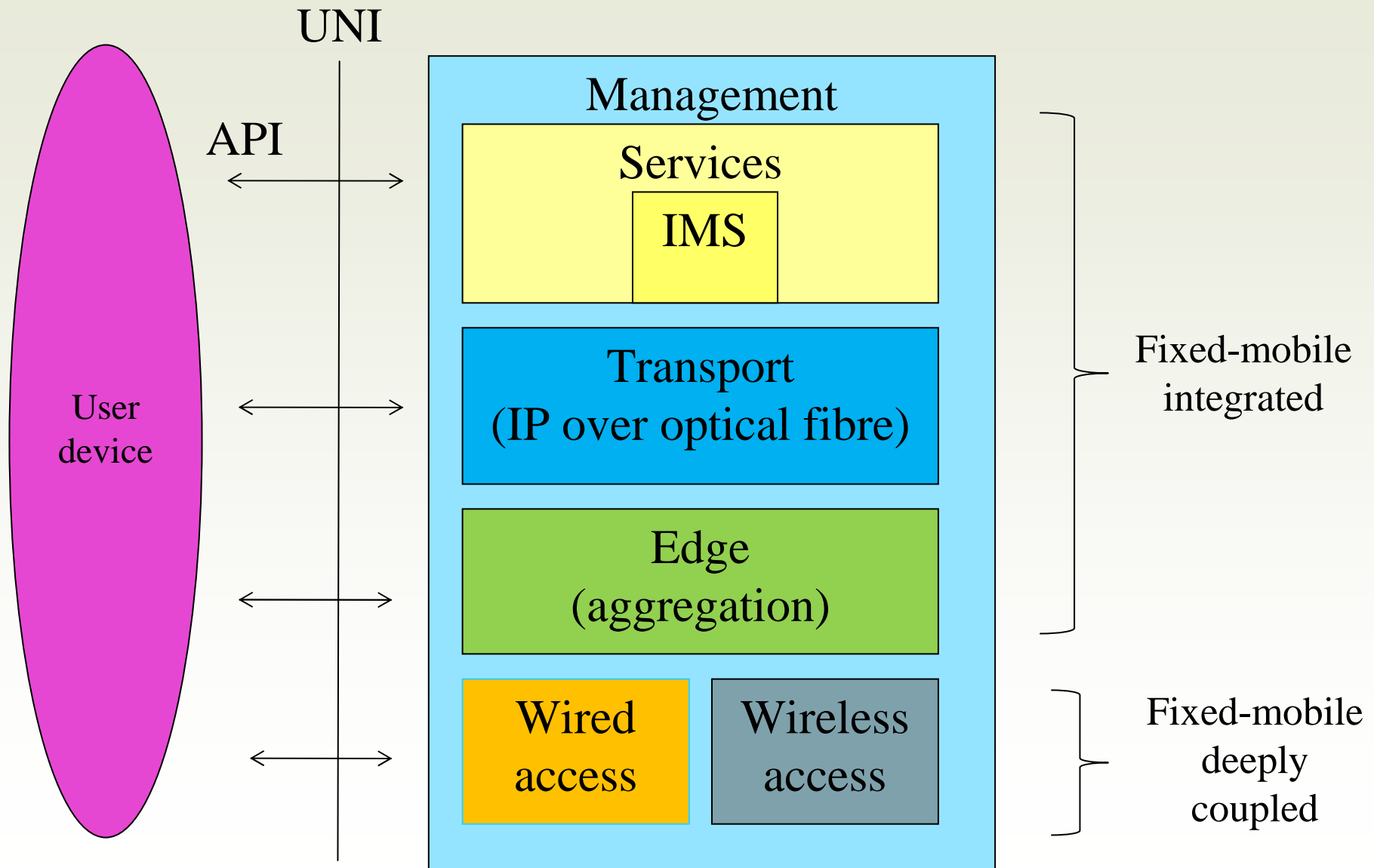
*.....each leading to 30 to 60 minutes of streaming!*

## Use of Mobile (UK)

- Consumers spend 6% longer on calls in 2007 than 2006
  - 21% rise in outbound mobile minutes
- More adults use text messaging than use the Internet  
(59,000,000,000 SMS messages p.a.)
- 11% of households have no fixed line – mobile only.

***But tales of the death of fixed voice are much exaggerated!***

- Outbound call minutes from fixed dropped by just 2%
- Still 60% of voice minutes originate on fixed lines



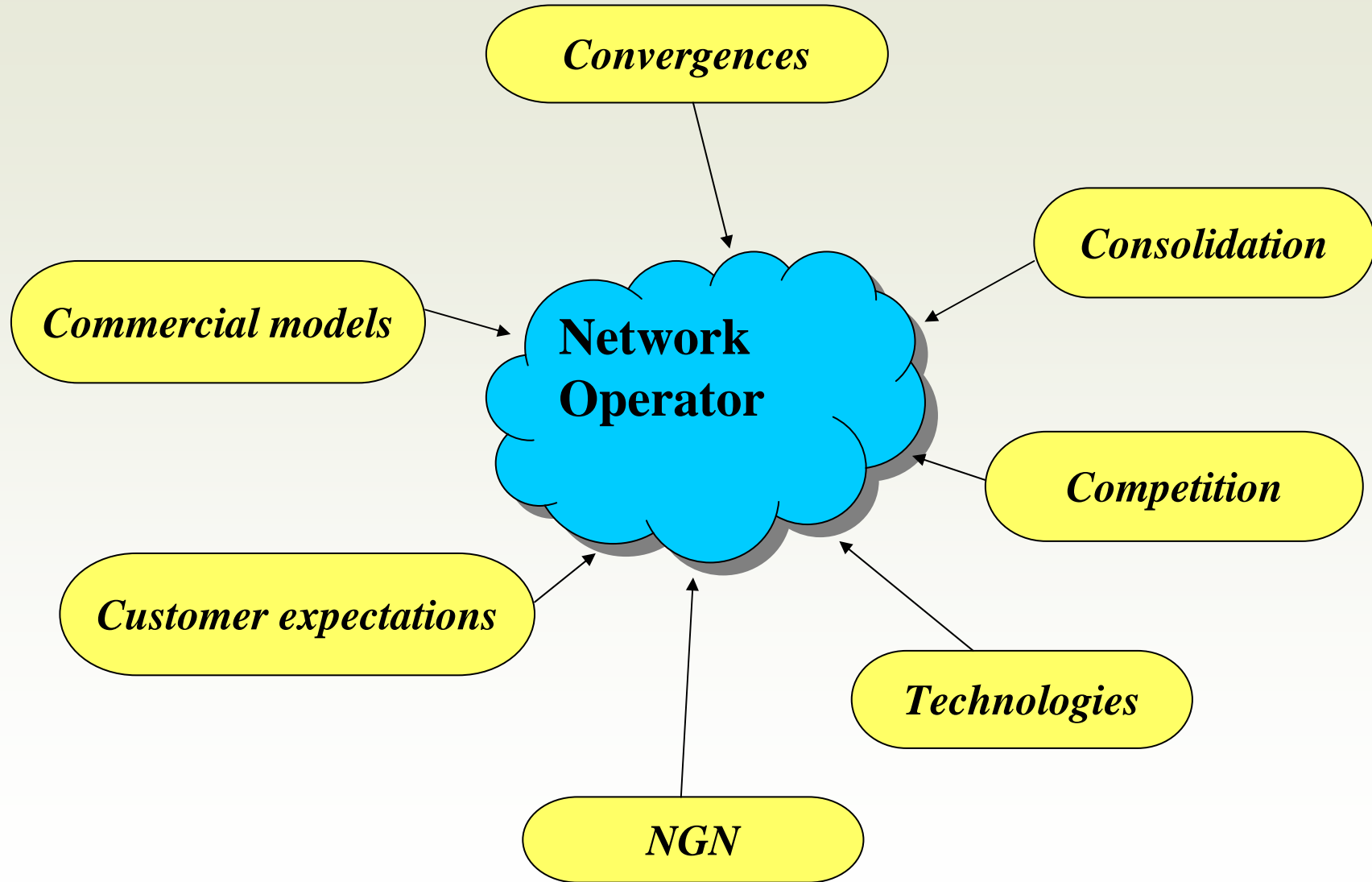
## Messages from Networks2008

*Regulation of convergence*

*The challenge of the chasm: revenues flat while capacity demand increases*

- *Drive down costs*
- *Change the commercial model*

*The three screens: PC, TV, mobile terminal*





So, network integration is vital for *cost reduction*.....

.....but introduction of converged services is necessary for  
*new revenues*.....

*.....but the most important challenge is  
the commercial model!*