



Impact of IP on Mobile Communications

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THIS IS CISCO ON THE MOVE

The Vision of Mobility

Delivering Operational and Service Benefits

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Delivering Individuality

Convenience & Effectiveness



The Vision of Mobility

The Mobile Network Impact of IP

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Access Agnostic infrastructure to deliver anytime, anywhere, any device access



Improve Network Efficiency to eliminate capacity bottleneck; SMS, MMS, Signaling Transport, Voice



Packet Convergence to support multi-service / multi-access

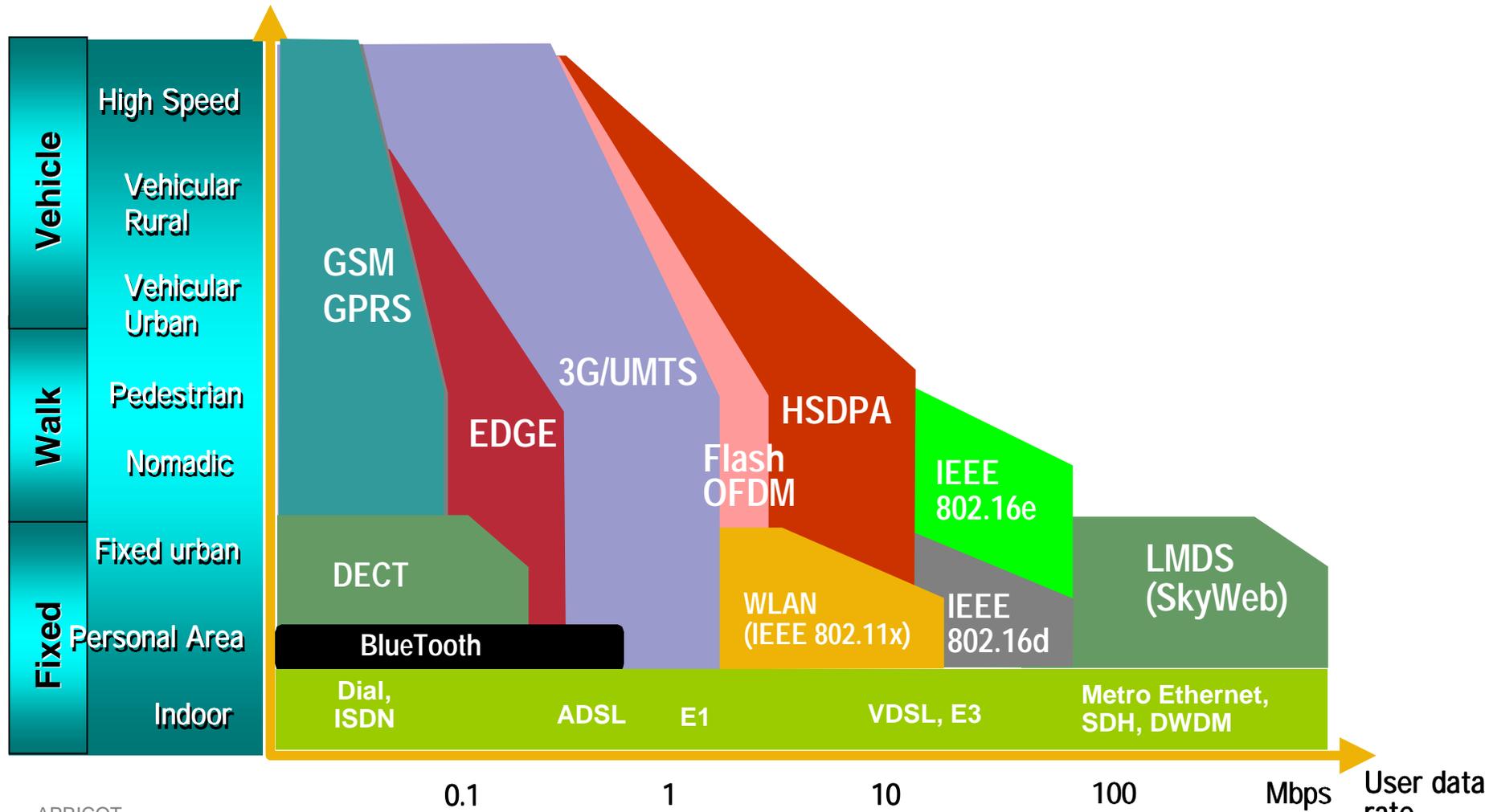


Intelligent Information Network to drive new Services, Applications & Content

The Vision of Mobility

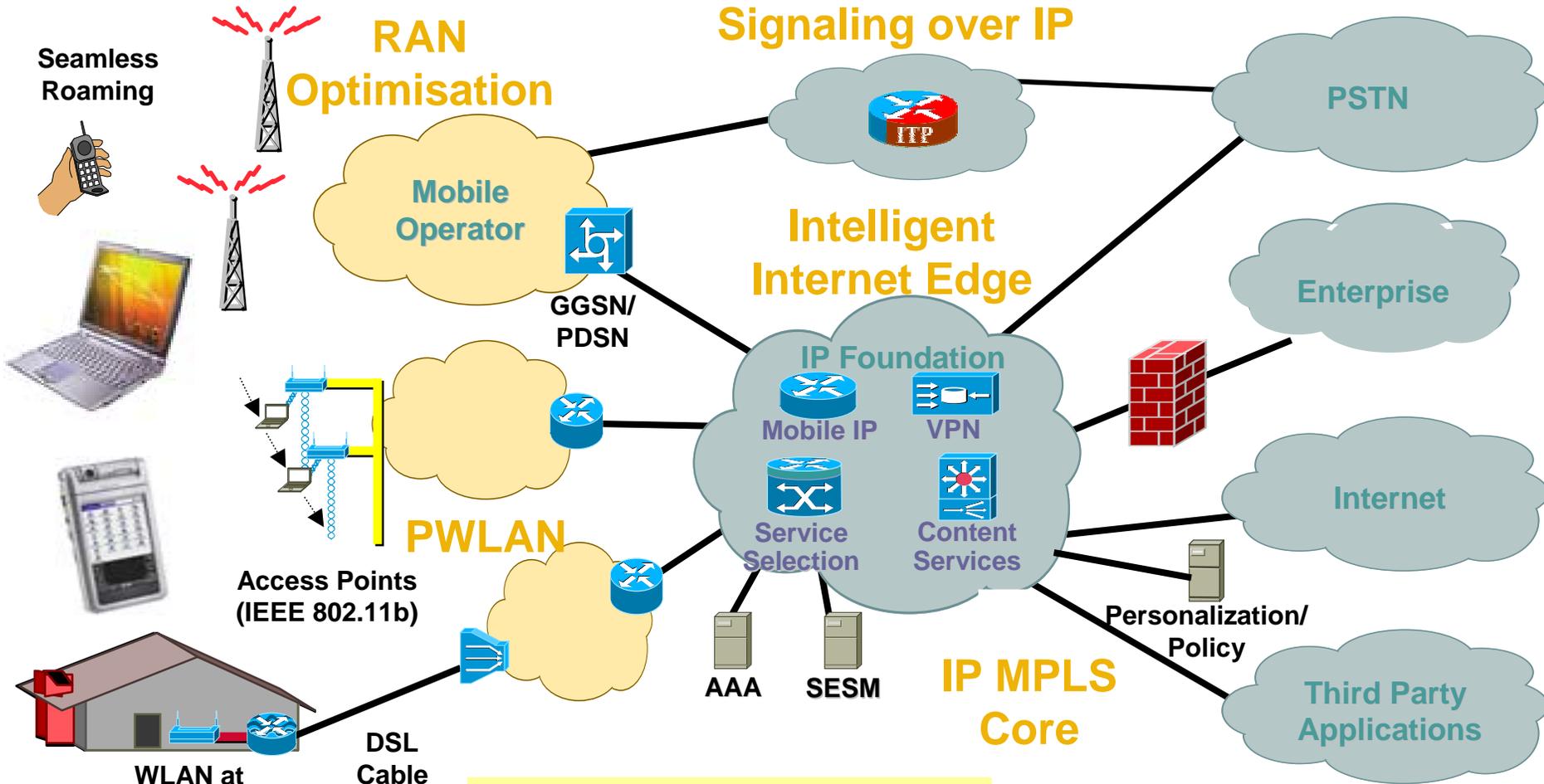
A Combination of Radio Technologies

The Increasing Relevance of IP for Mobility Solutions



The Vision of Mobility

Cisco's Architectural Framework

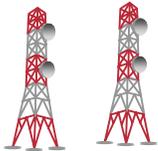


Cellular Infrastructure for ubiquity
 Wireless LAN – public and private
 Mobile IP maintains session
 VPN extends Enterprise Network

Intelligent Internet Edge

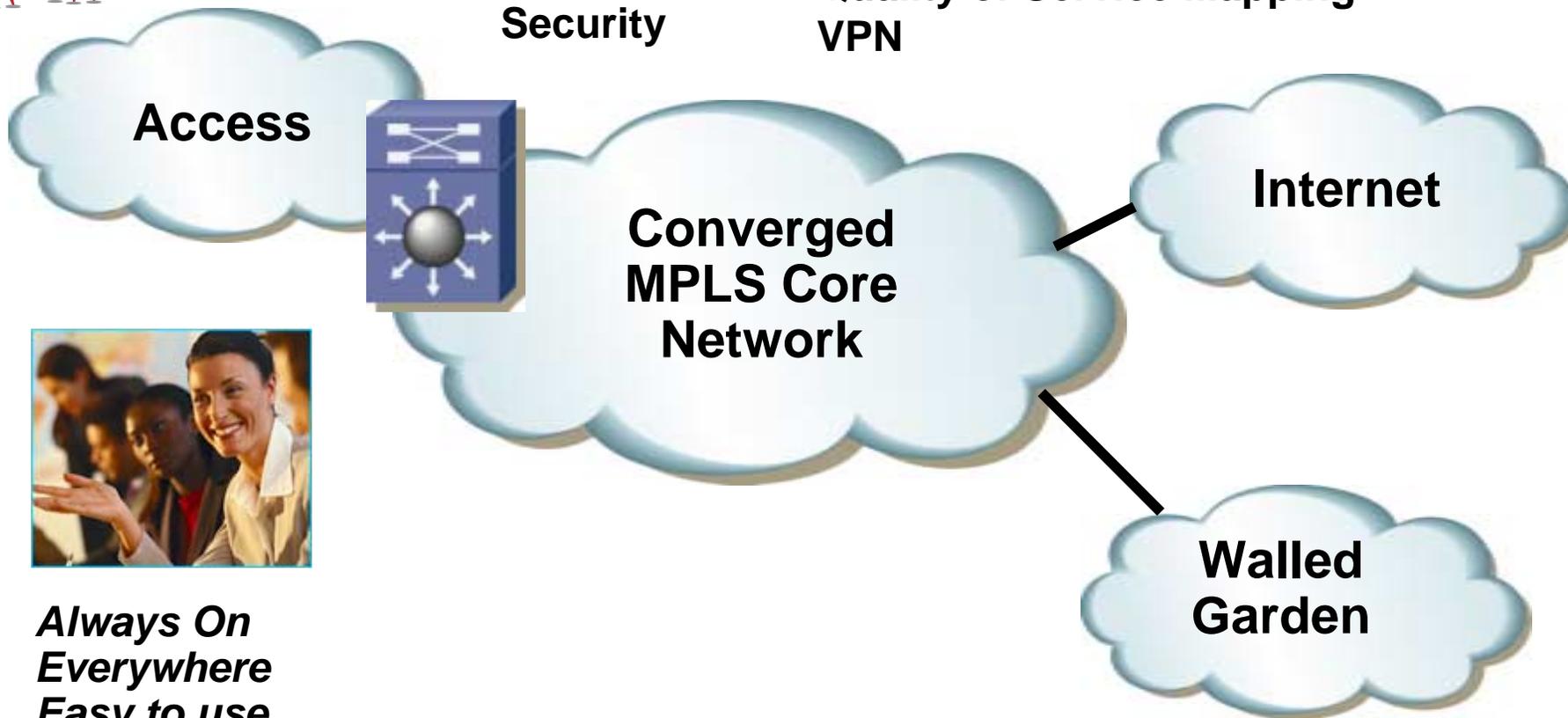
Multi-service Multi-access Support

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Mobility
Control
Security

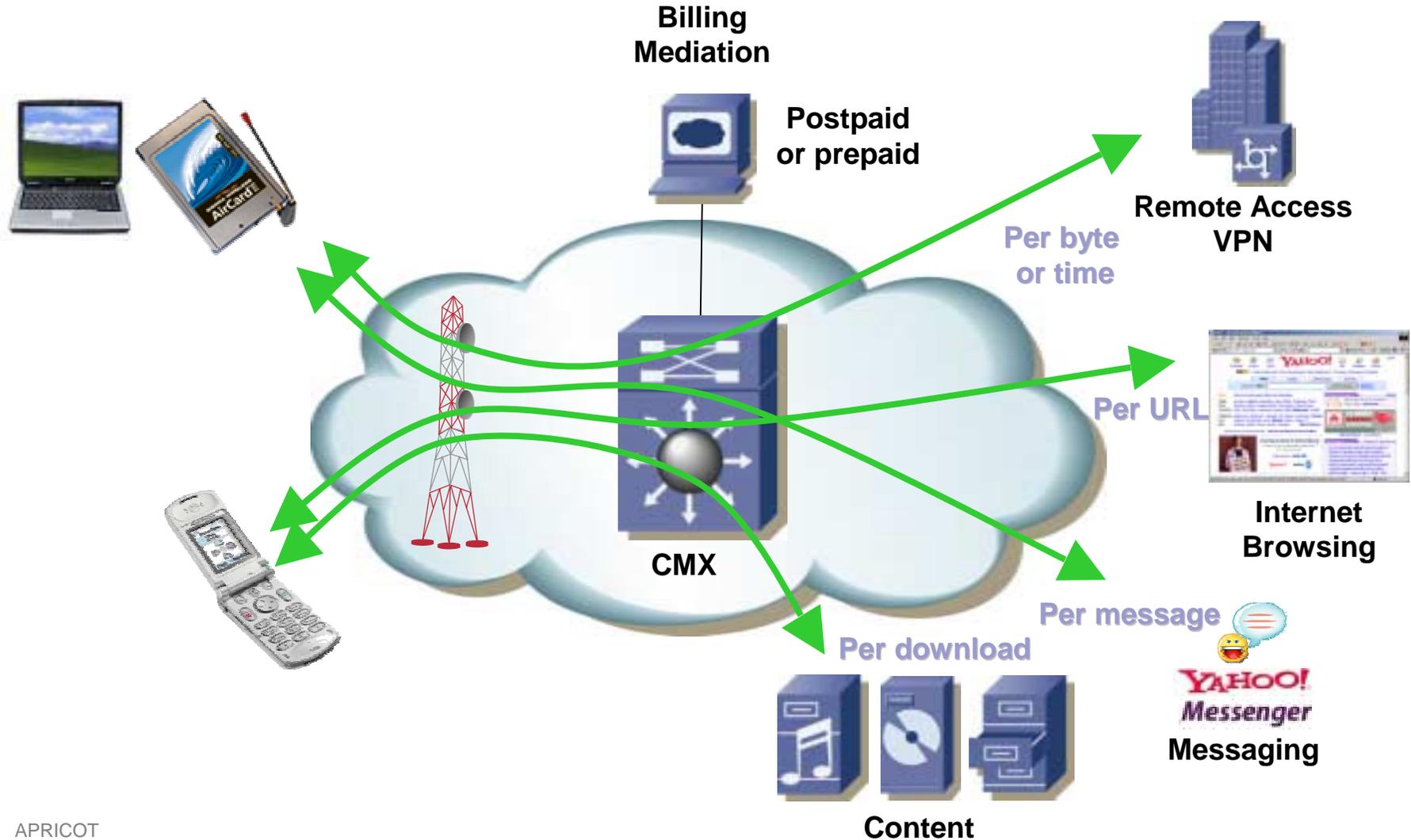
Value Based Charging
Quality of Service Mapping
VPN



*Always On
Everywhere
Easy to use
One Experience.....One bill*

Intelligent Internet Edge

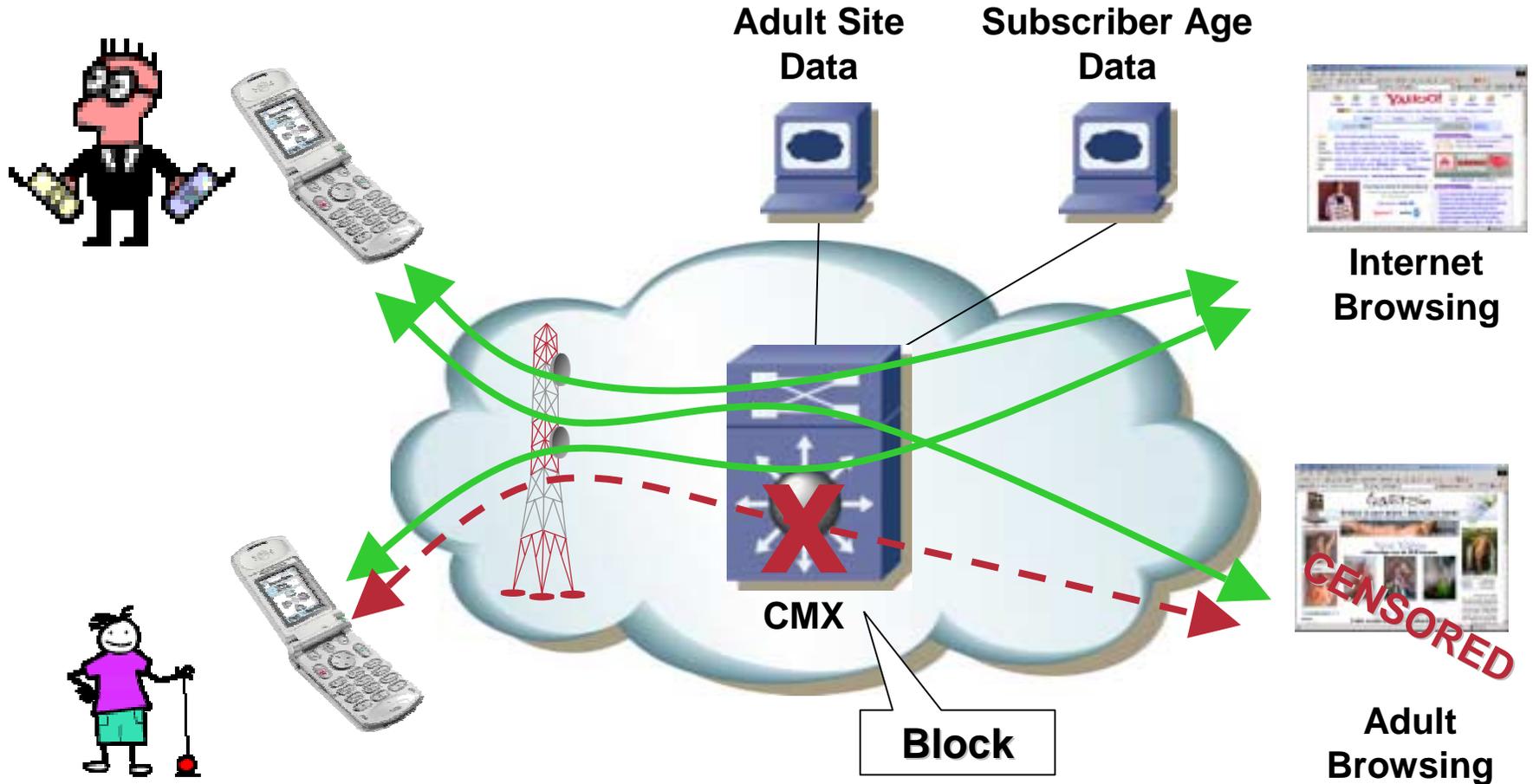
ARPU growth using Content Billing



Intelligent Internet Edge

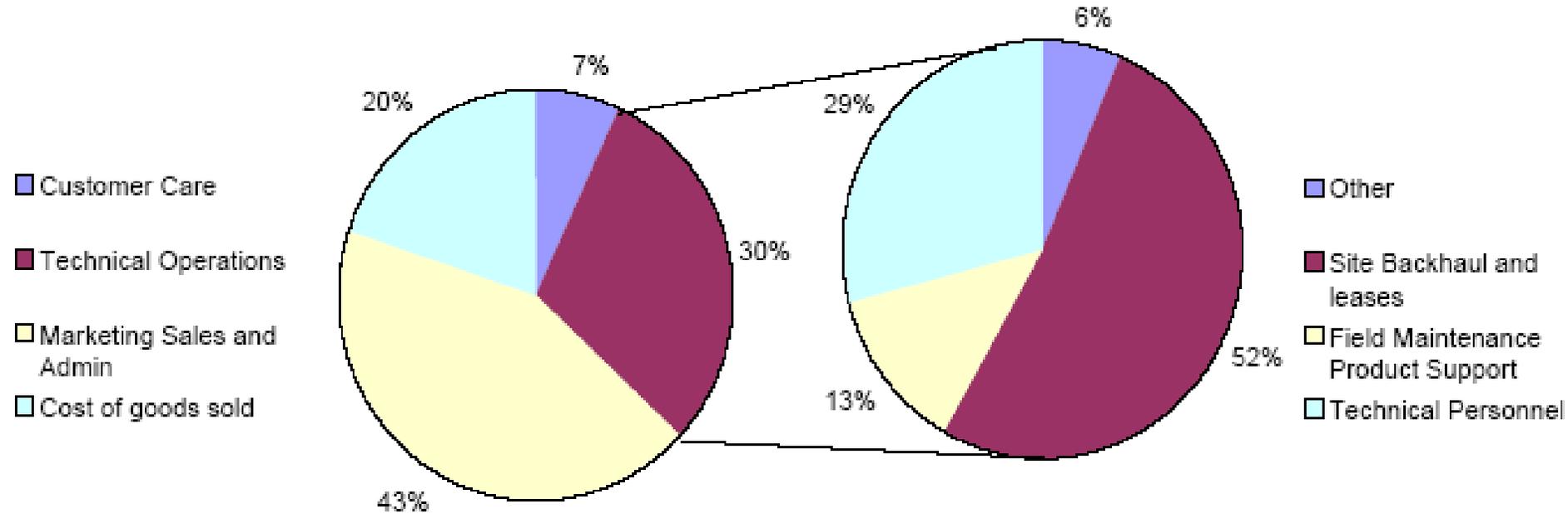
Child-safe browsing using Content Blocking

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RAN Optimization

Mobile Service Provider Opex Analysis



Source: Yankee Group Jul 2003

Bottom Line - RAN backhaul accounts for more than 50% of total OpEx spend making it an obvious target area for cost reduction

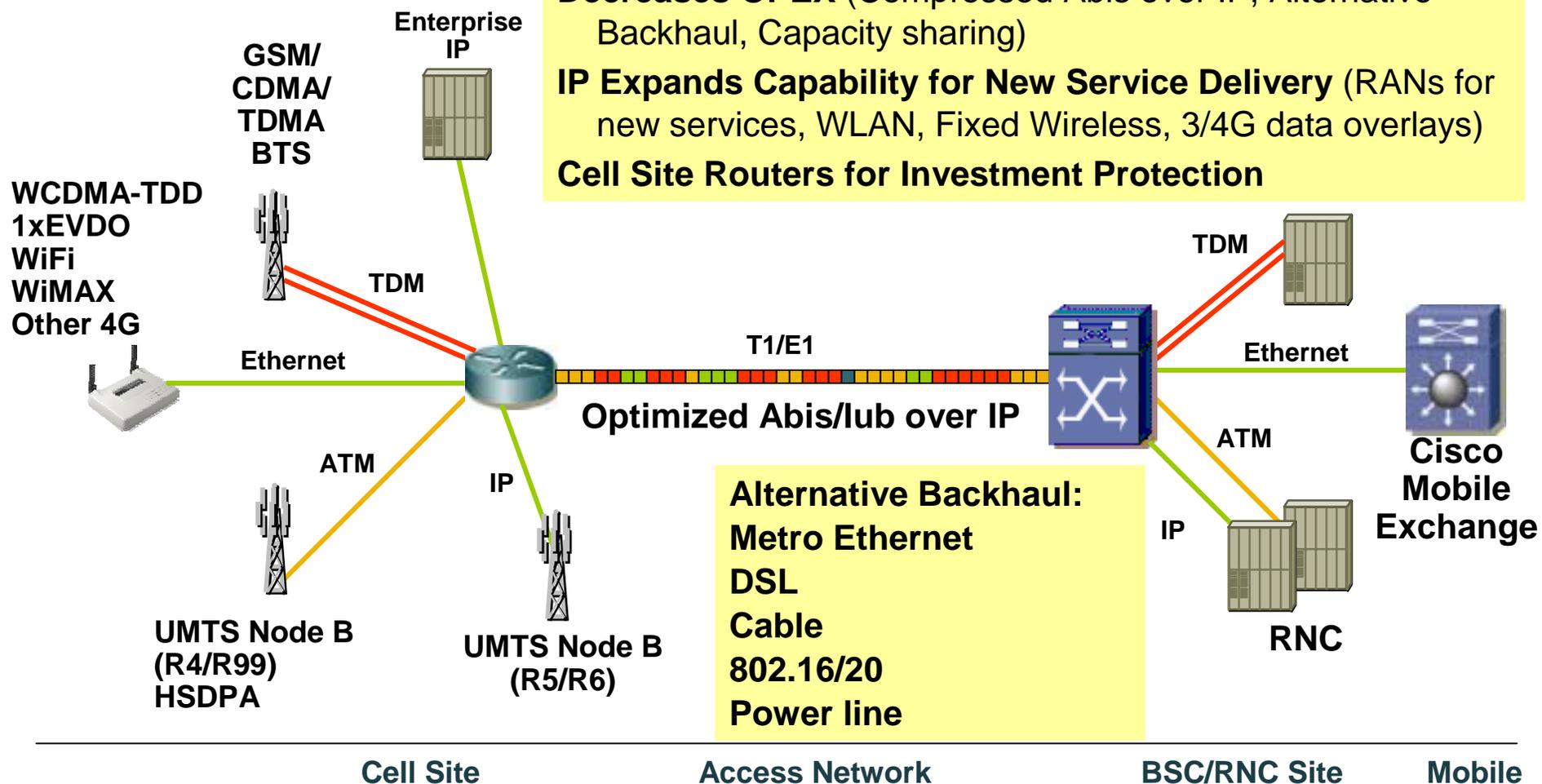
RAN Optimization

The cell site of the future is IP connected

Decreases OPEX (Compressed Abis over IP, Alternative Backhaul, Capacity sharing)

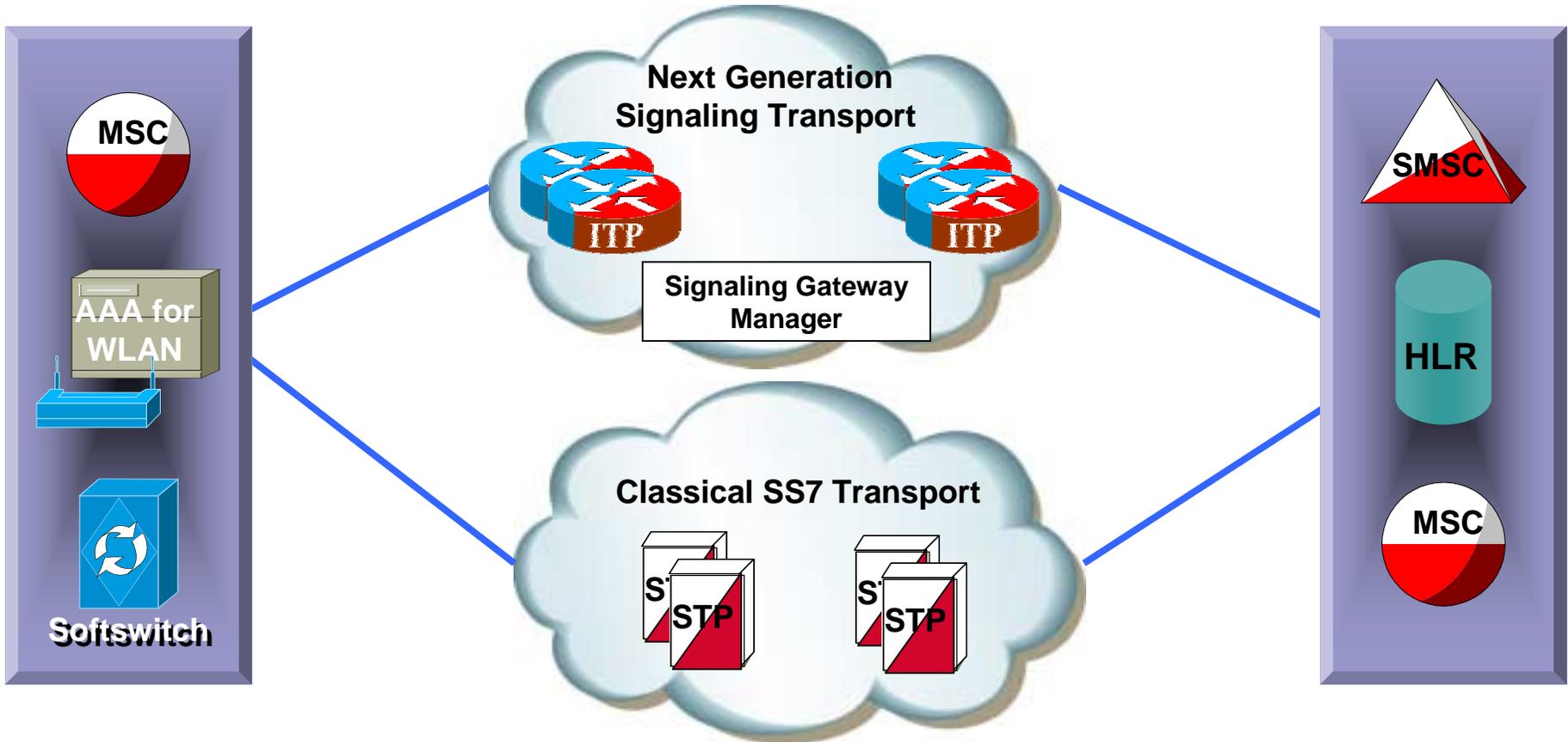
IP Expands Capability for New Service Delivery (RANs for new services, WLAN, Fixed Wireless, 3/4G data overlays)

Cell Site Routers for Investment Protection



Signaling over IP

Efficient Transport and New Services



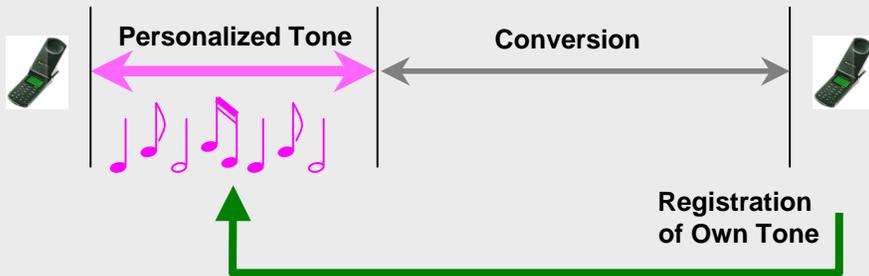
**Offload SMS traffic to protect signalling network
IP-enabling SMS, HLR, and other service systems
Creating new opportunities by connecting IP and IN worlds**

Signaling over IP

Custom Ring Back Tone Service

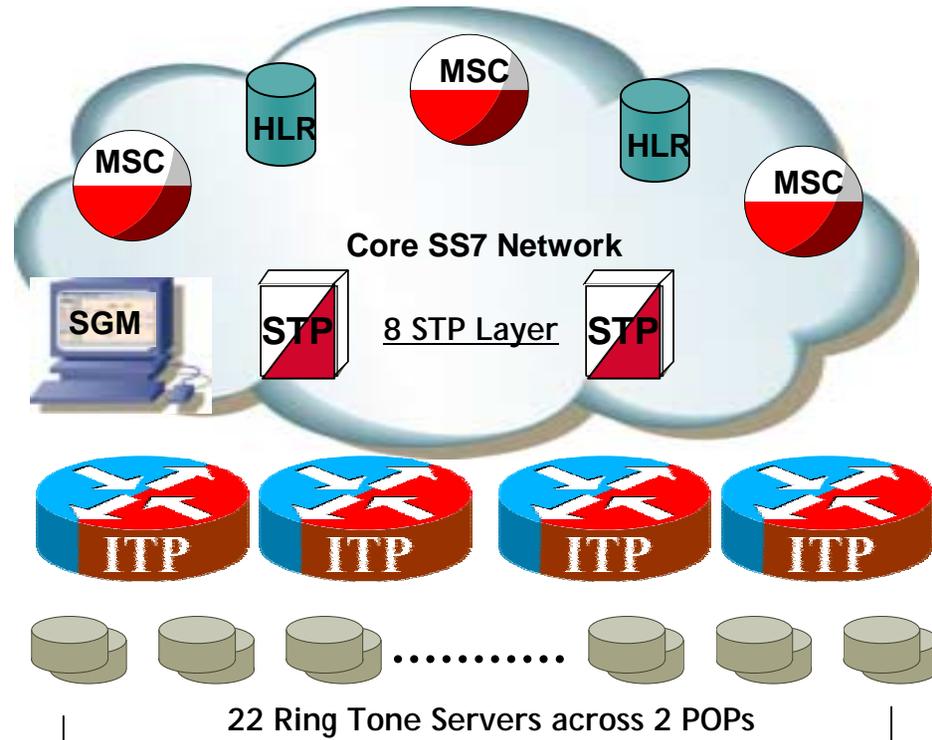
User Experience

“Caller” can listen music, voice, or other any sound registered by “caller” as a ring back tone sound.



For this service, Infracvalley provides a control server that maintains subscribers' data.

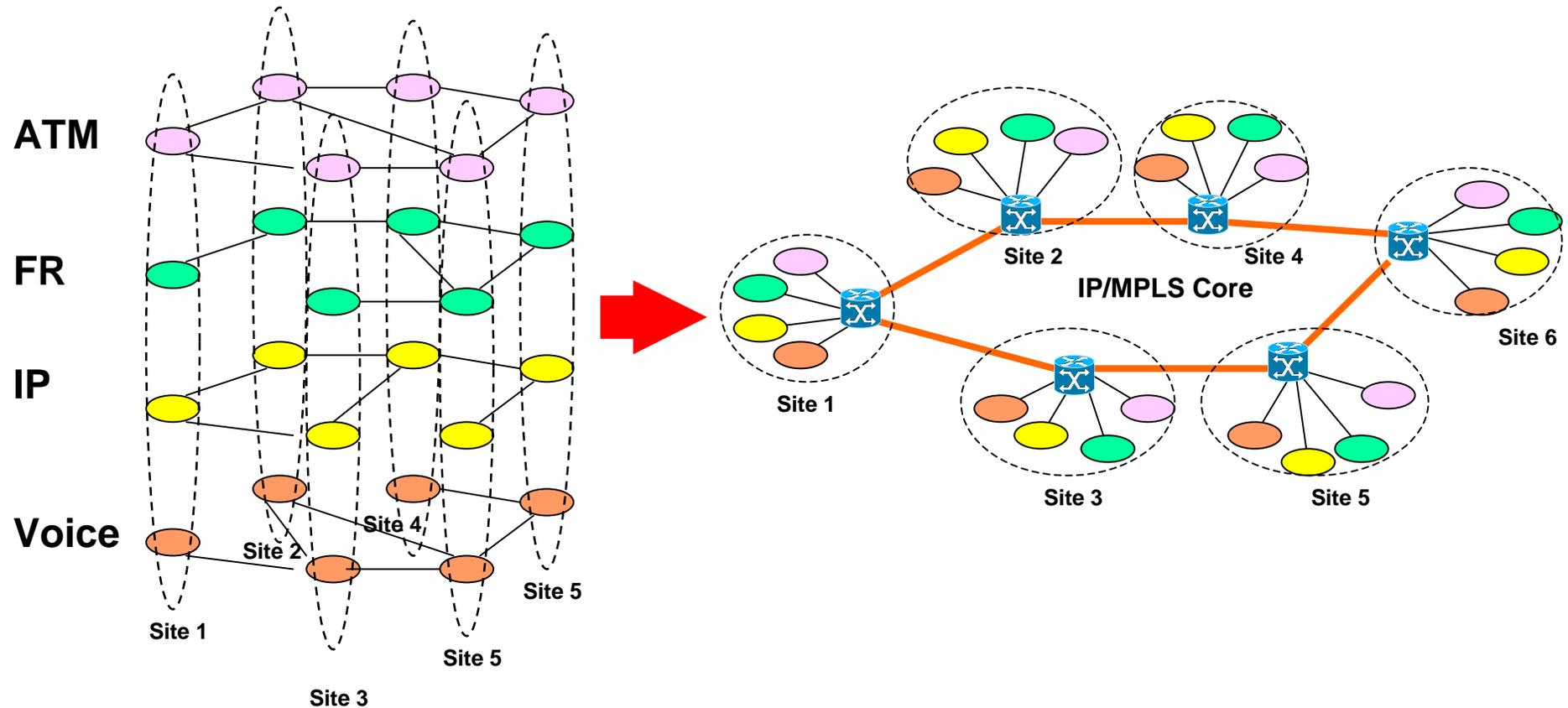
Network Architecture



By end of first year, used by 34% of 19M subs
Triples number of SS7 messages per call – download per call

IP MPLS Core

Migrate disparate networks to single MPLS core



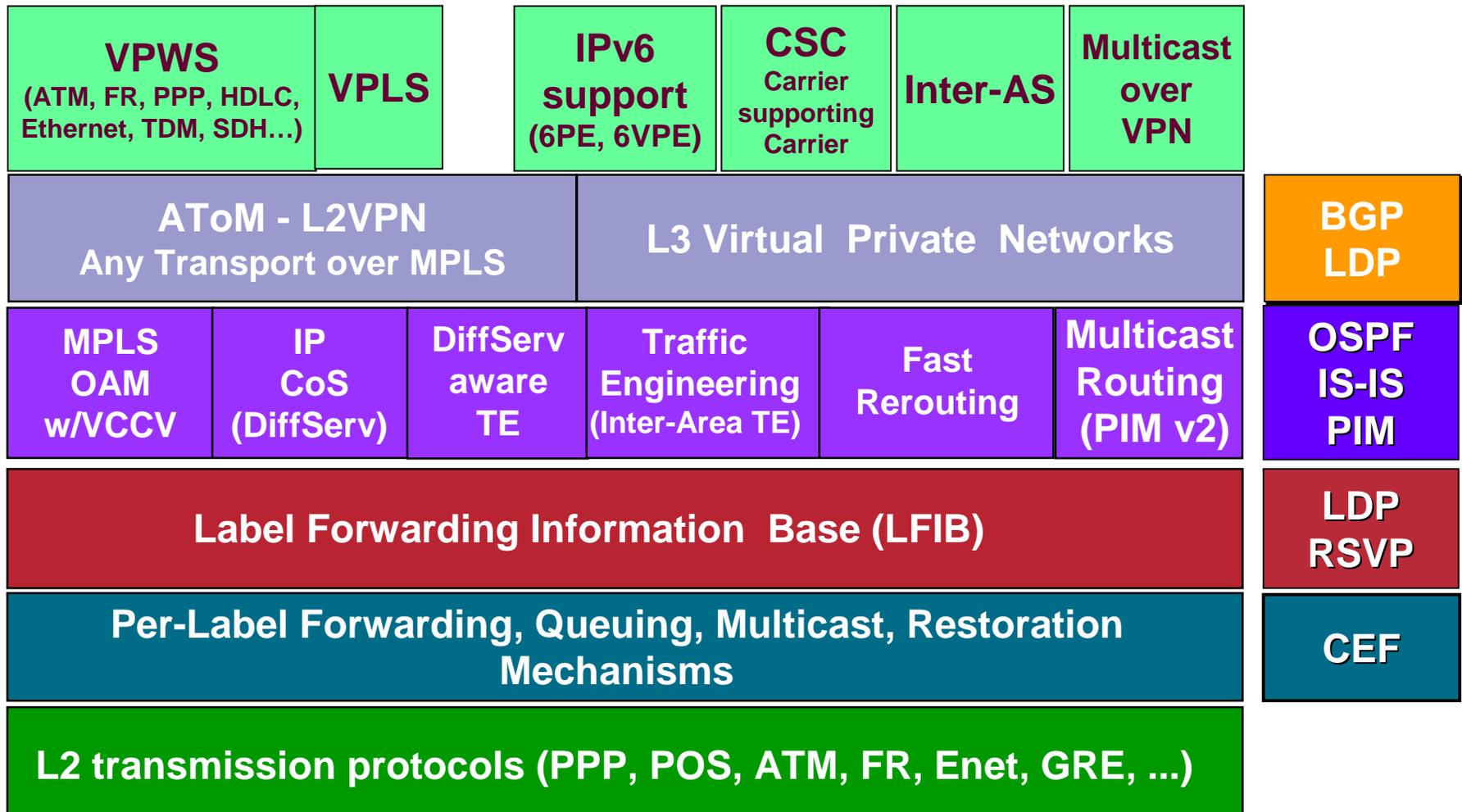
Many networks on common sites with different edge devices and transmission

Single network over high capacity transmission carrying all services

IP MPLS Core

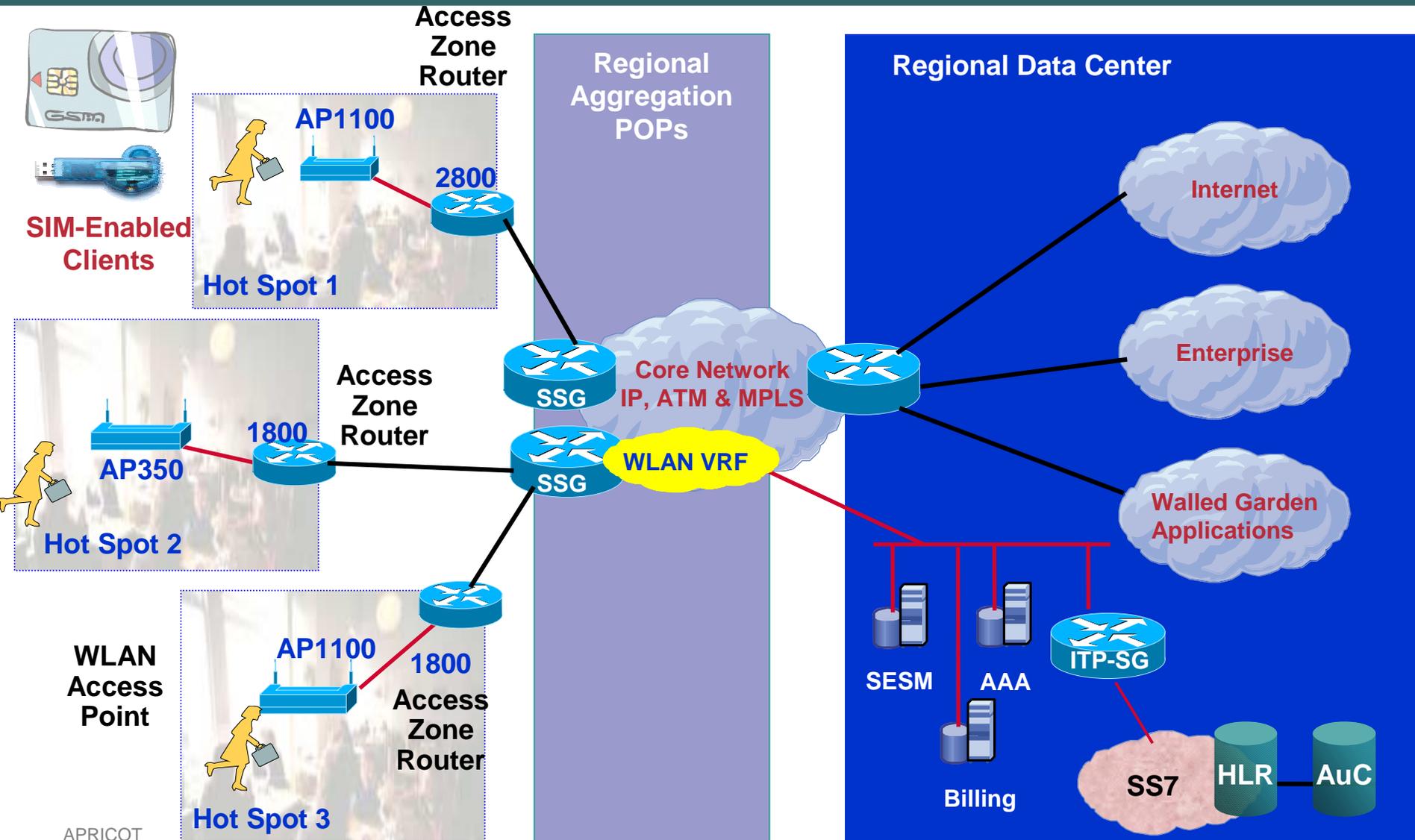
IP MPLS Enabling Network Services

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Public Wireless LAN

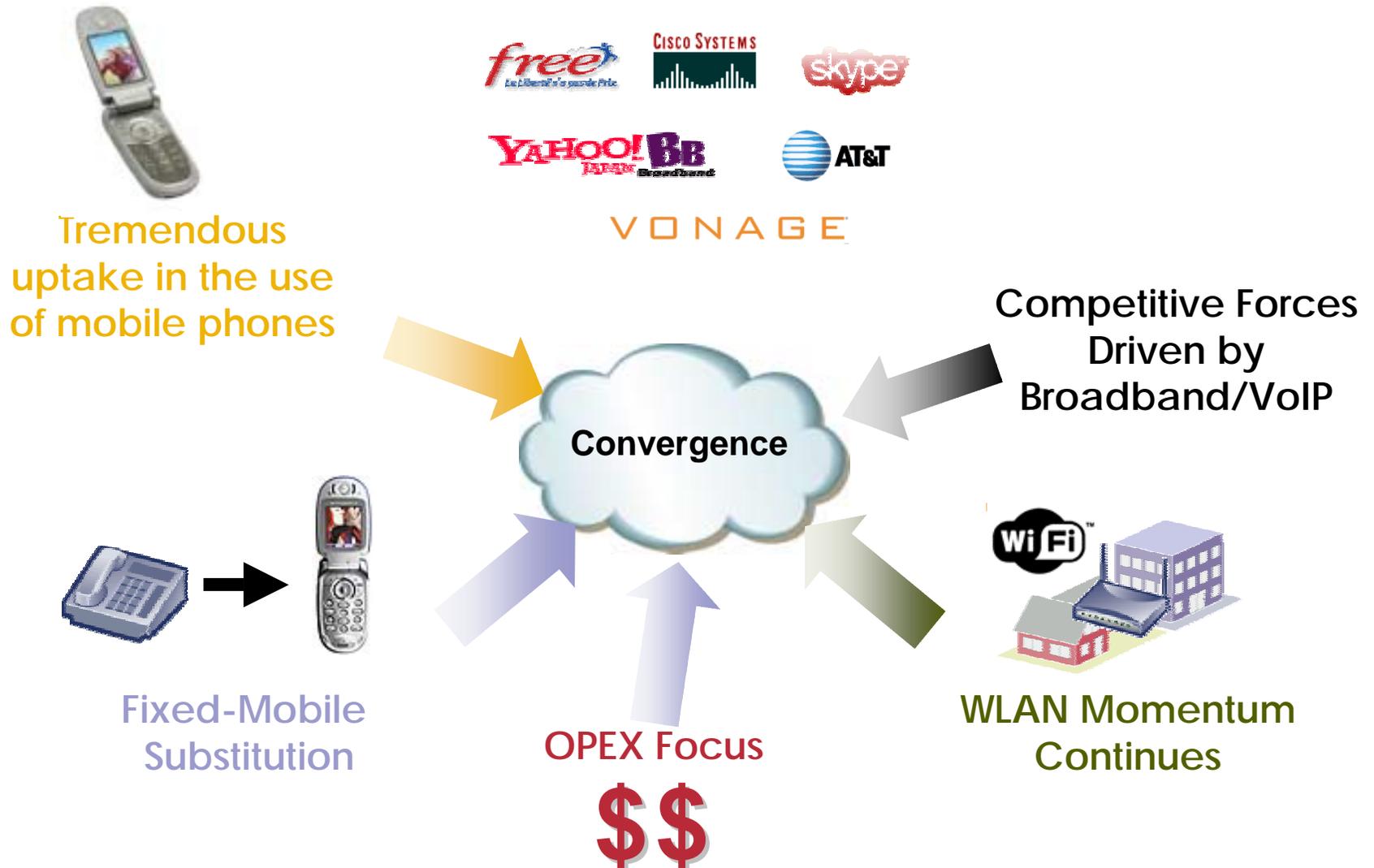
Seamless Mobility and Roaming



Fixed-Mobile Convergence

Market Forces are Driving this Transition

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Fixed-Mobile Convergence

The Different Layers

Application Convergence
IMS

Data-Oriented Convergence
MIP

Voice-Oriented Convergence
UMA

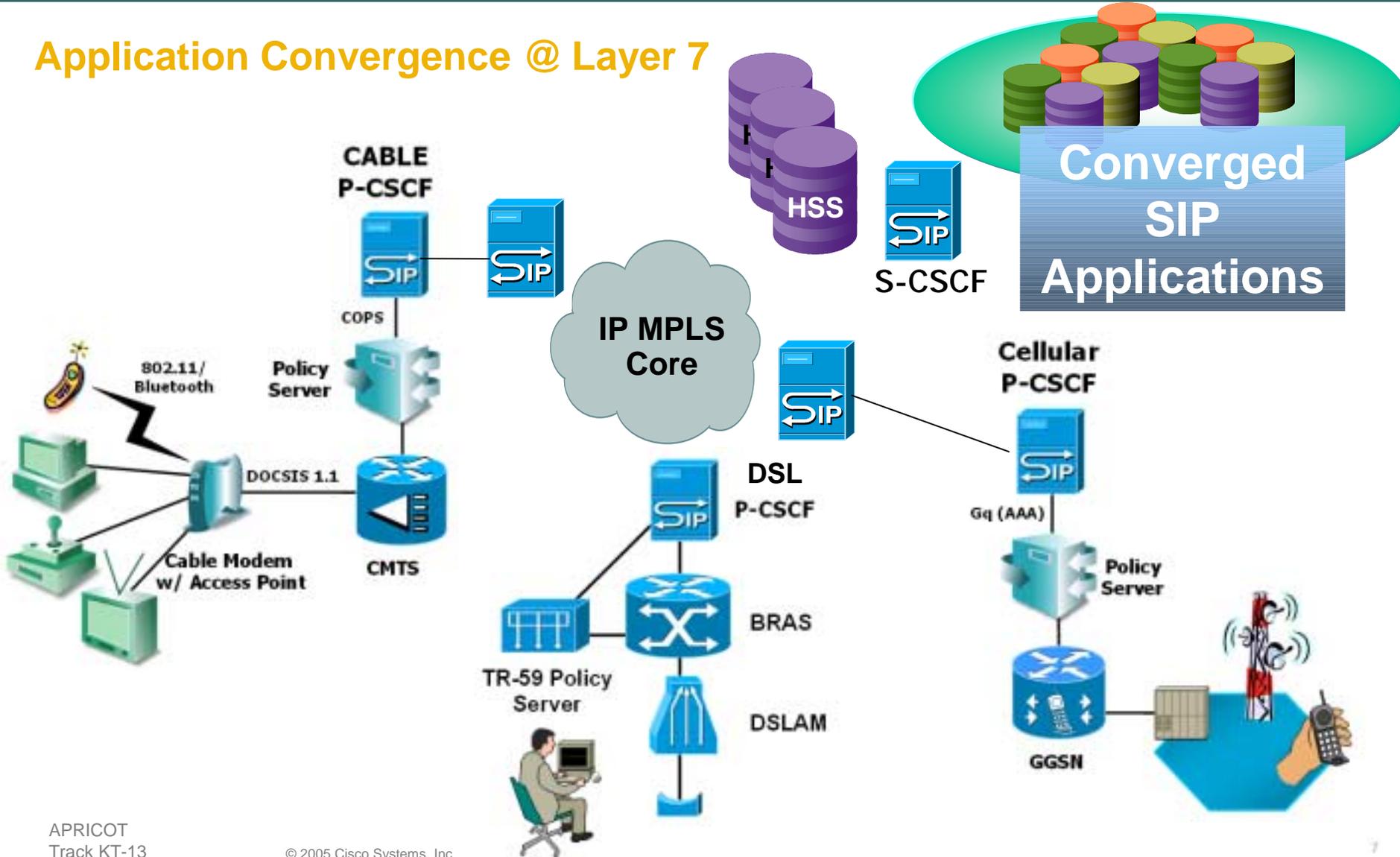
- **IMS Convergence with SIP**
Driven by ITU, ETSI-TISPAN and 3GPP
- **Mobile IP**
Driven by IETF, 3GPP2, and many vendors
- **Unlicensed Mobile Access (UMA)**
Driven by UMA forum and now 3GPP

Fixed-Mobile Convergence

IMS Convergence with SIP

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Application Convergence @ Layer 7



Fixed-Mobile Convergence

Mobile IP

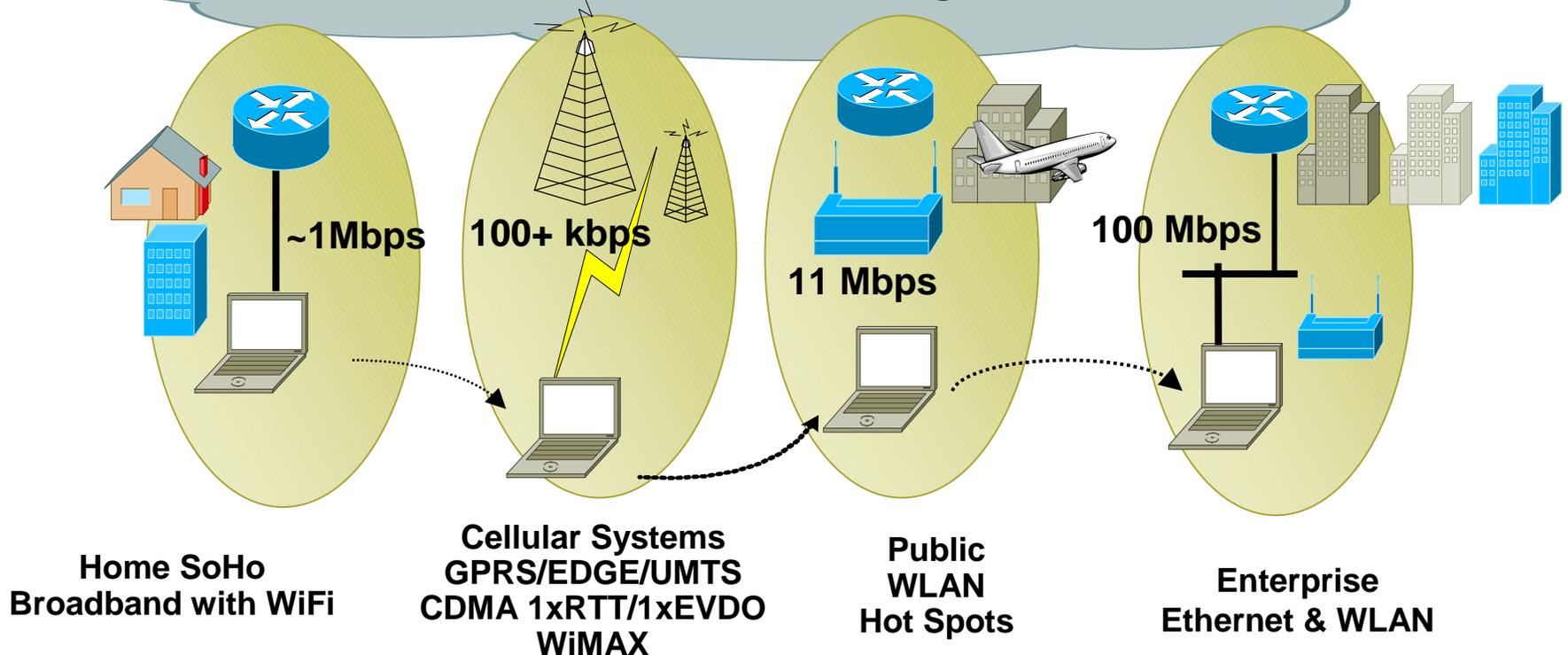
Data-Oriented Convergence @ Layer 3

ONE NETWORK- Combines access technologies for seamless user experience



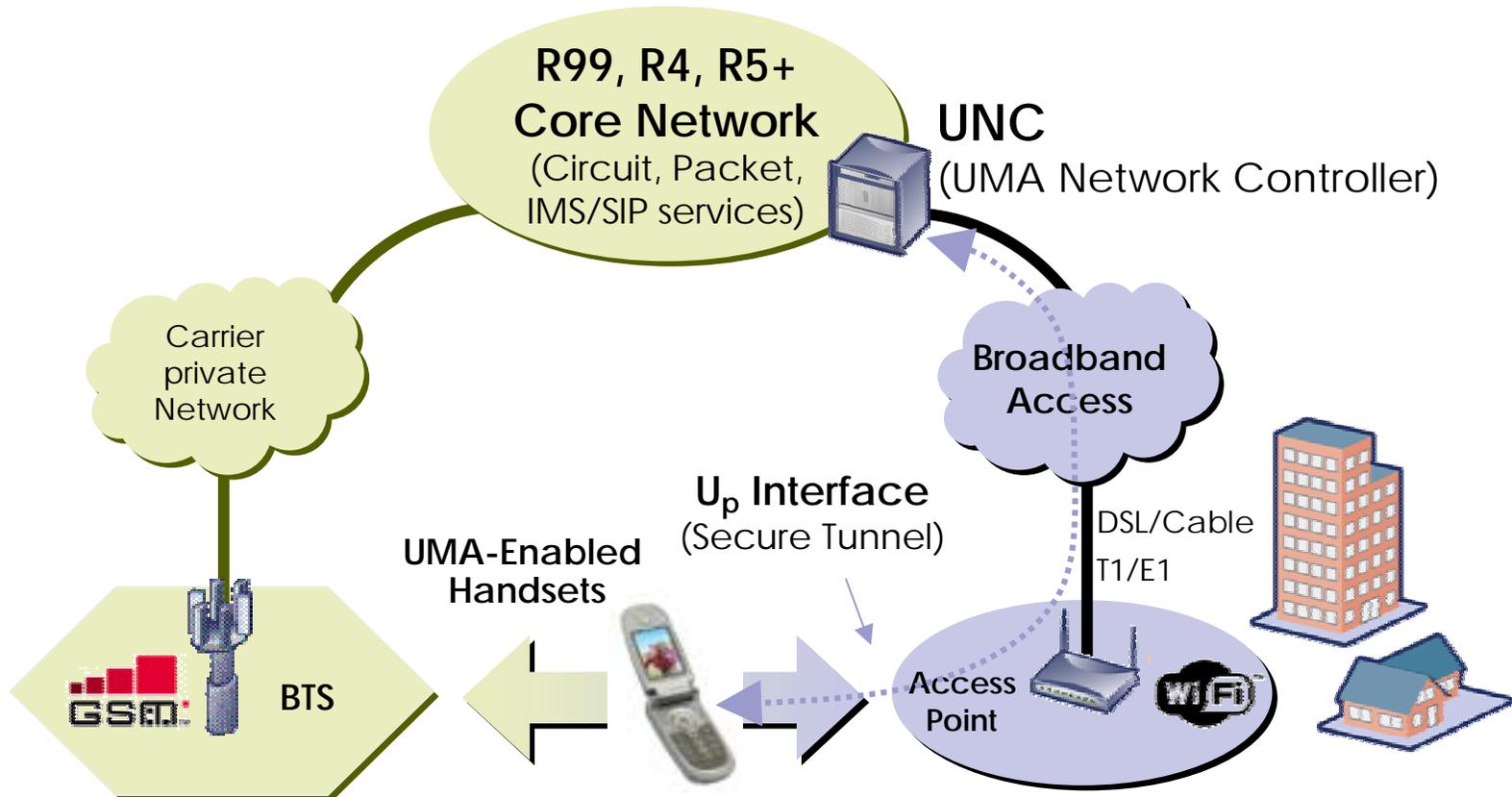
Maintain IPsec tunnels as user moves
Adoption & live deployment TODAY
Cisco market leadership

Cisco Mobile Exchange



Fixed-Mobile Convergence Unlicensed Mobile Access (UMA)

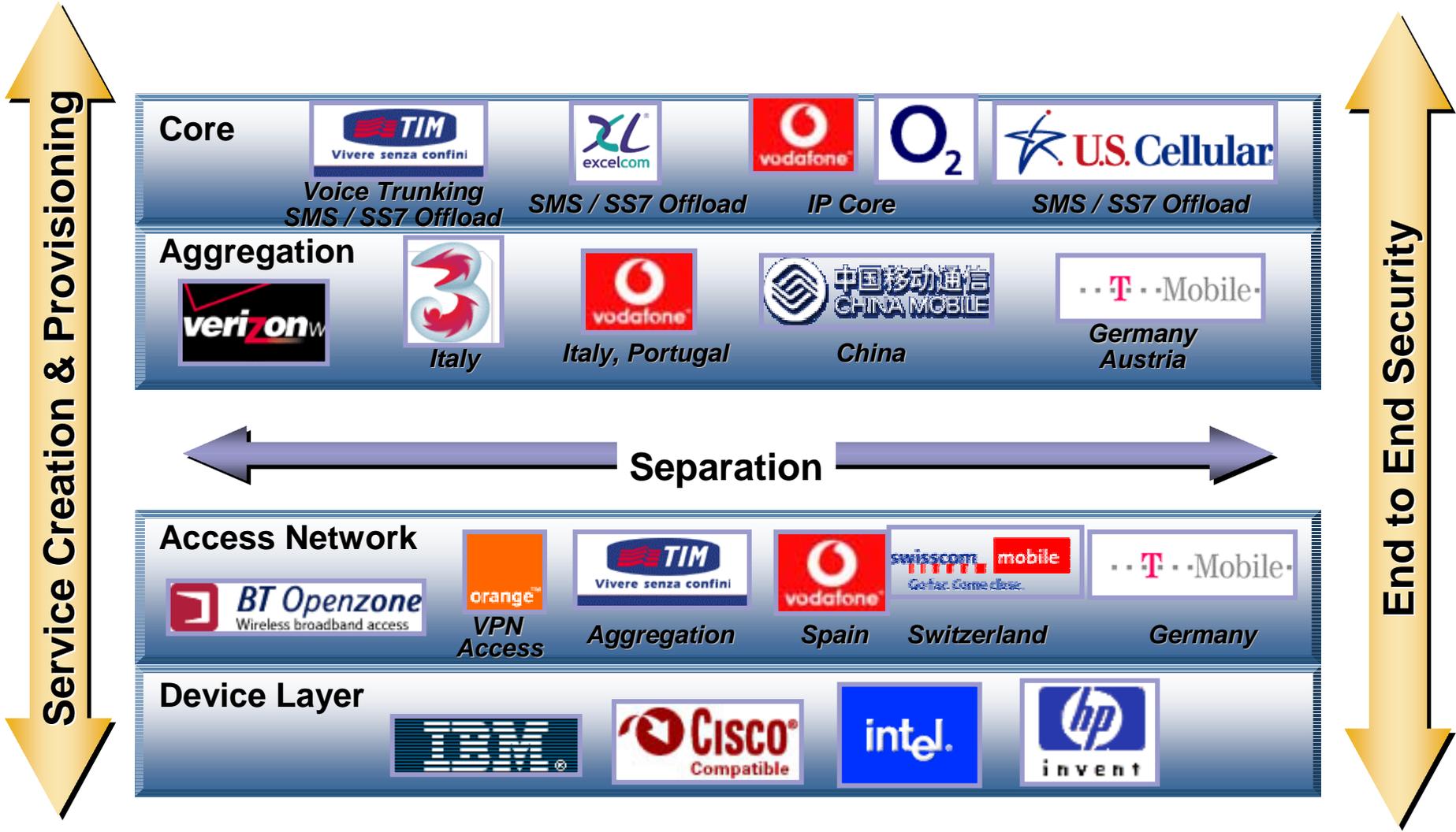
Voice-Oriented Convergence @ Layer 2



Strong consumer voice solution
Protects legacy investments
Relatively straightforward to implement

IP Convergence for Mobility

Impact of IP on Mobile Customers



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