



Impact of IP on Mobile Communications

David Caspari
Vice President
Asia Pacific Service Provider
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THIS IS CISCO ON THE MOVE

The Vision of Mobility

Delivering Operational and Service Benefits

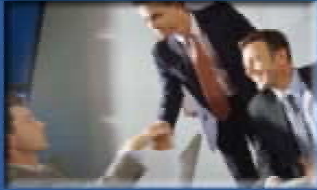
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The Vision of Mobility

The Mobile Network Impact of IP

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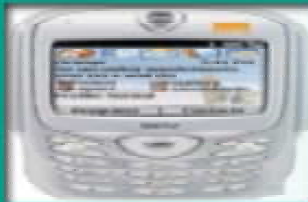
Access Agnostic infrastructure to deliver anytime, anywhere, any device access



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



Packet Convergence to support multi-service / multi-access



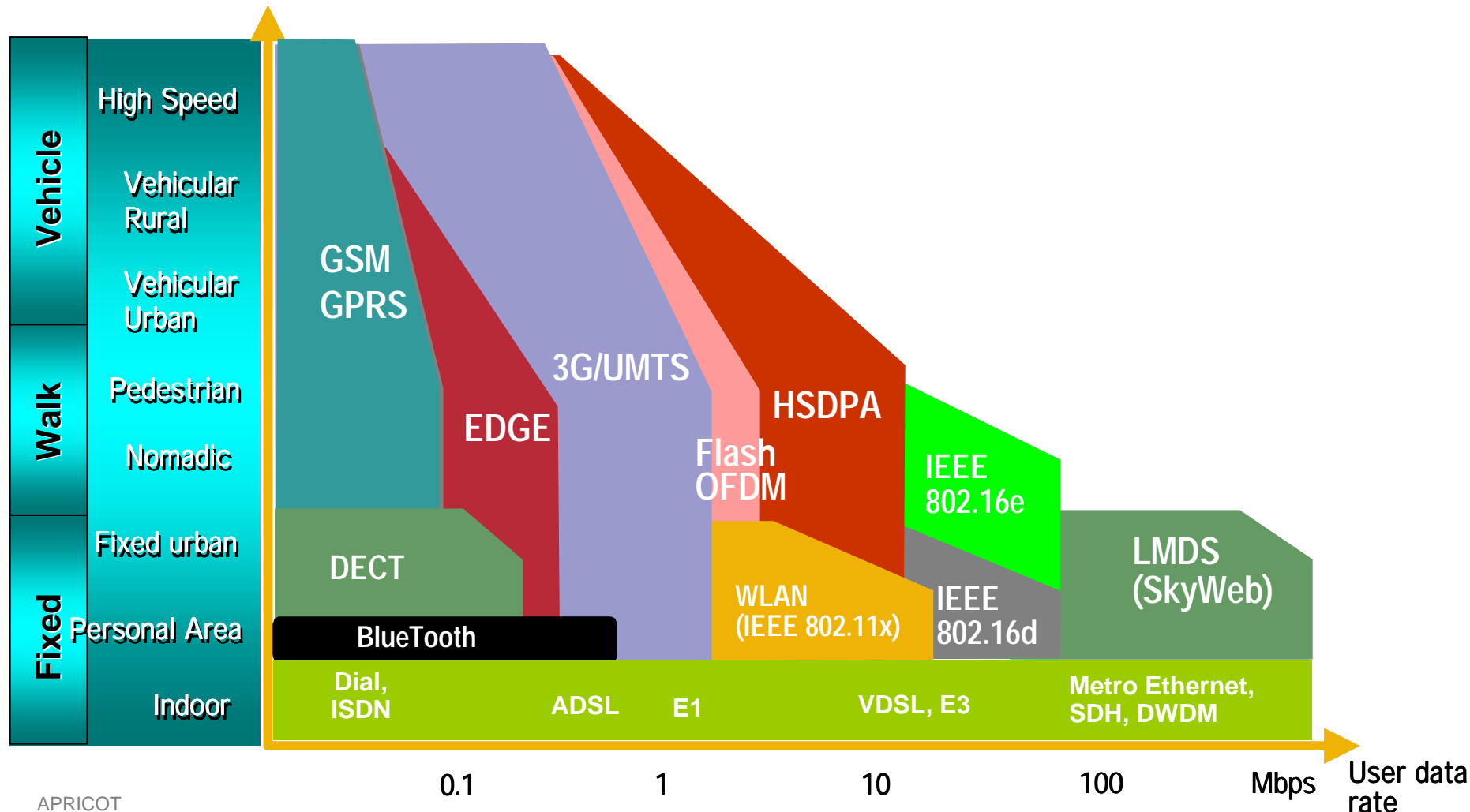
Intelligent Information Network to drive new Services, Applications & Content

The Vision of Mobility

A Combination of Radio Technologies

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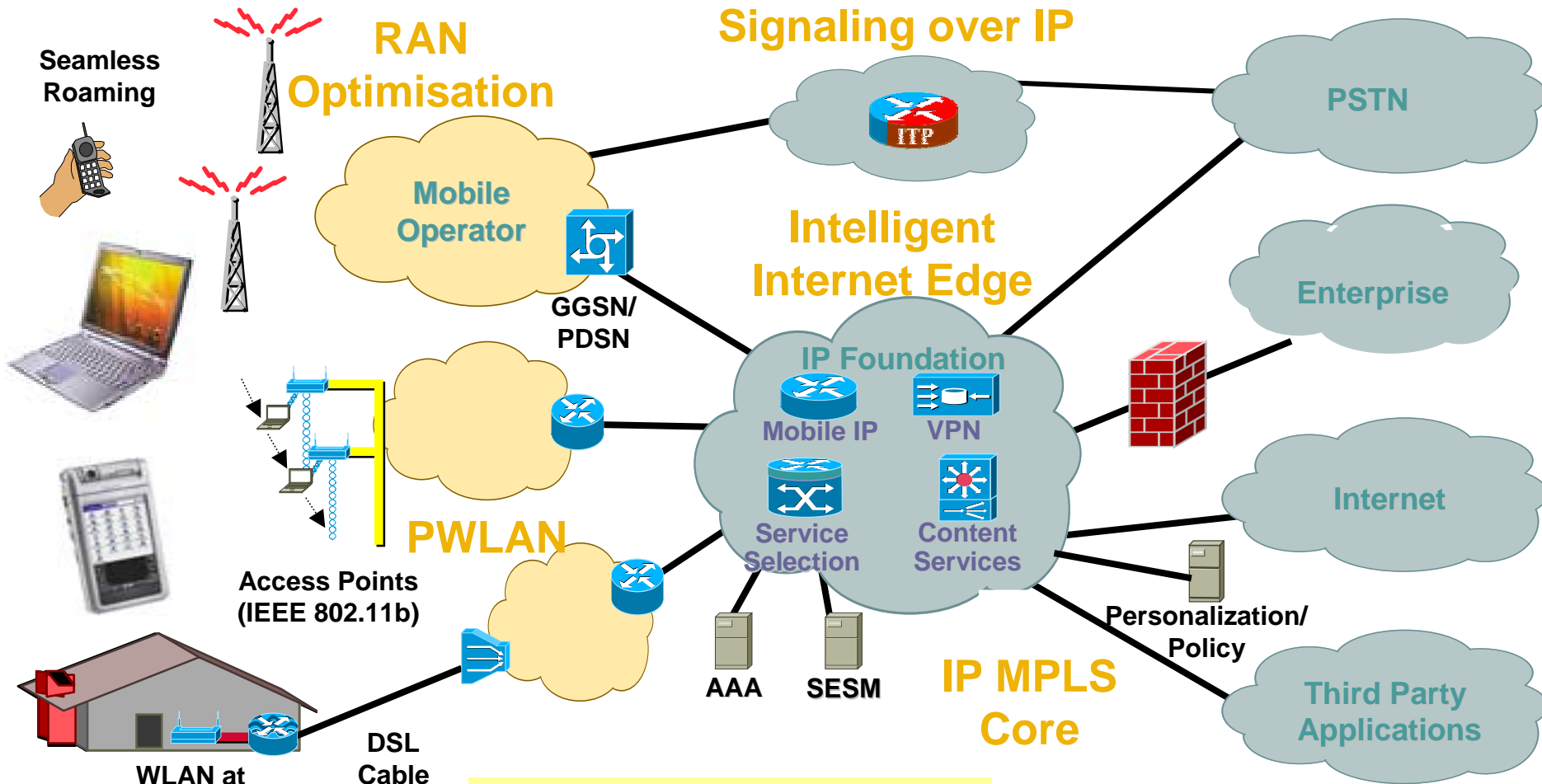
The Increasing Relevance of IP for Mobility Solutions



The Vision of Mobility

Cisco's Architectural Framework

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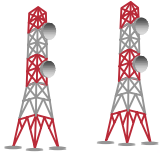


Cellular Infrastructure for ubiquity
Wireless LAN – public and private
Mobile IP maintains session
VPN extends Enterprise Network

Intelligent Internet Edge

Multi-service Multi-access Support

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**Mobility
Control
Security**

**Value Based Charging
Quality of Service Mapping
VPN**

Access



**Converged
MPLS Core
Network**

Internet

**Walled
Garden**

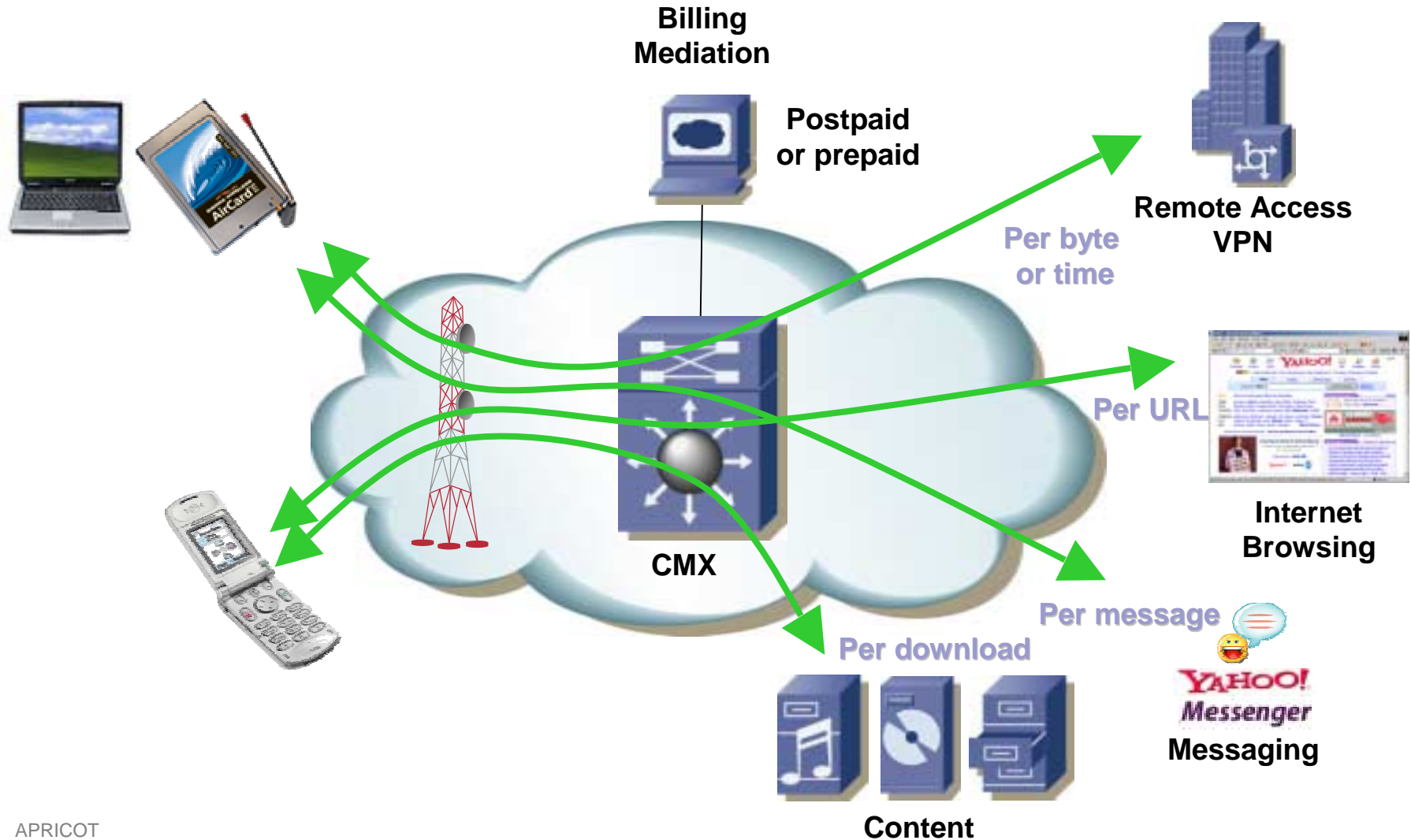


***Always On
Everywhere
Easy to use
One Experience.....One bill***

Intelligent Internet Edge

ARPU growth using Content Billing

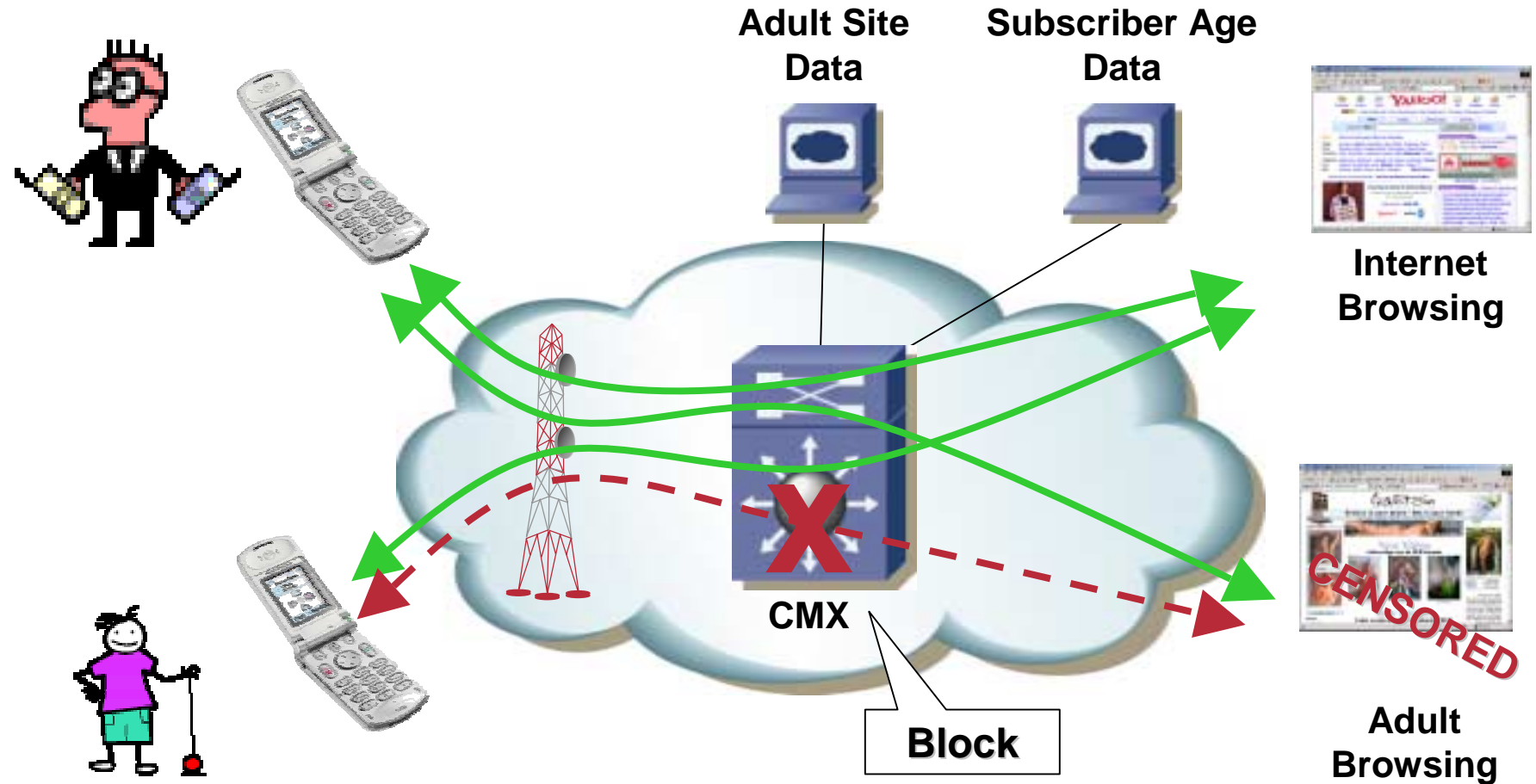
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Intelligent Internet Edge

Child-safe browsing using Content Blocking

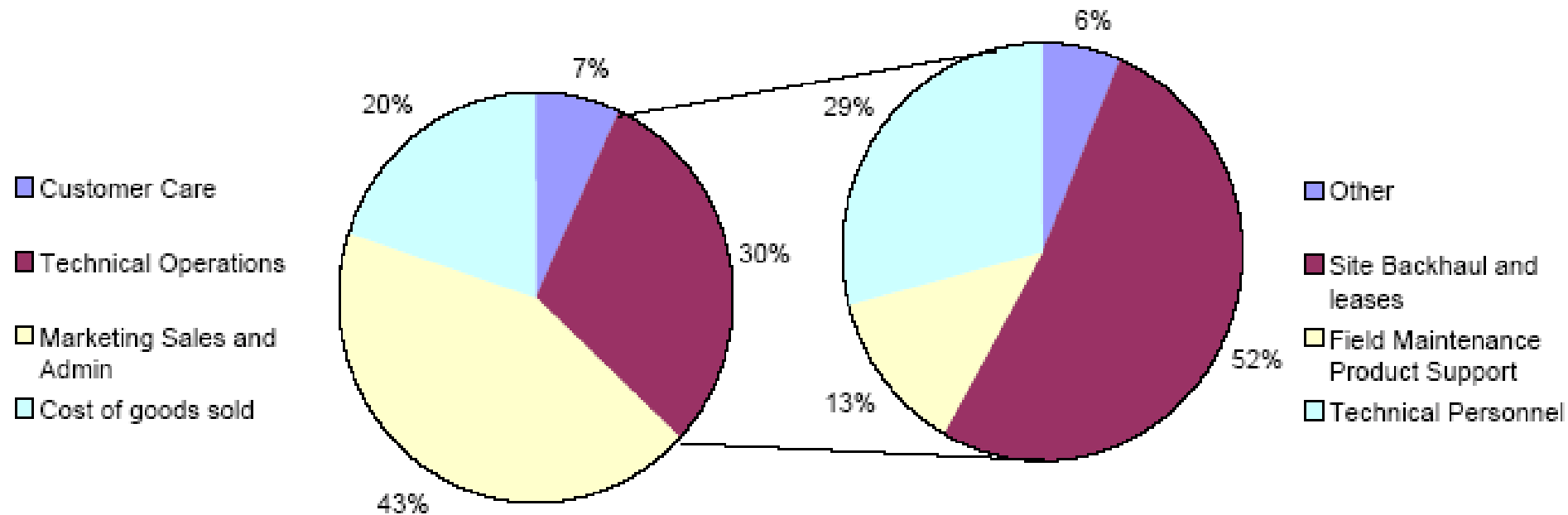
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RAN Optimization

Mobile Service Provider Opex Analysis

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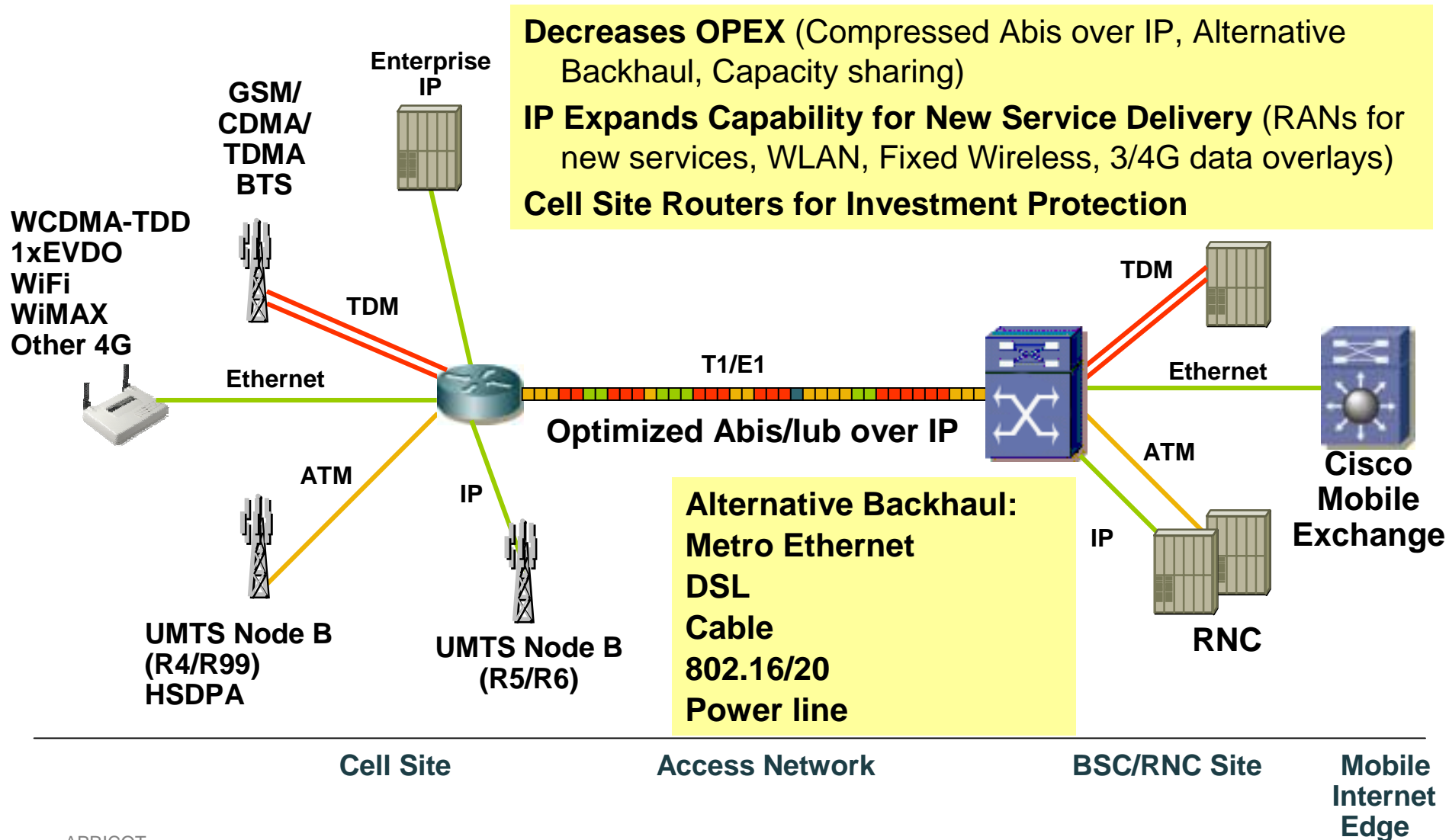
Source: Yankee Group Jul 2003

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

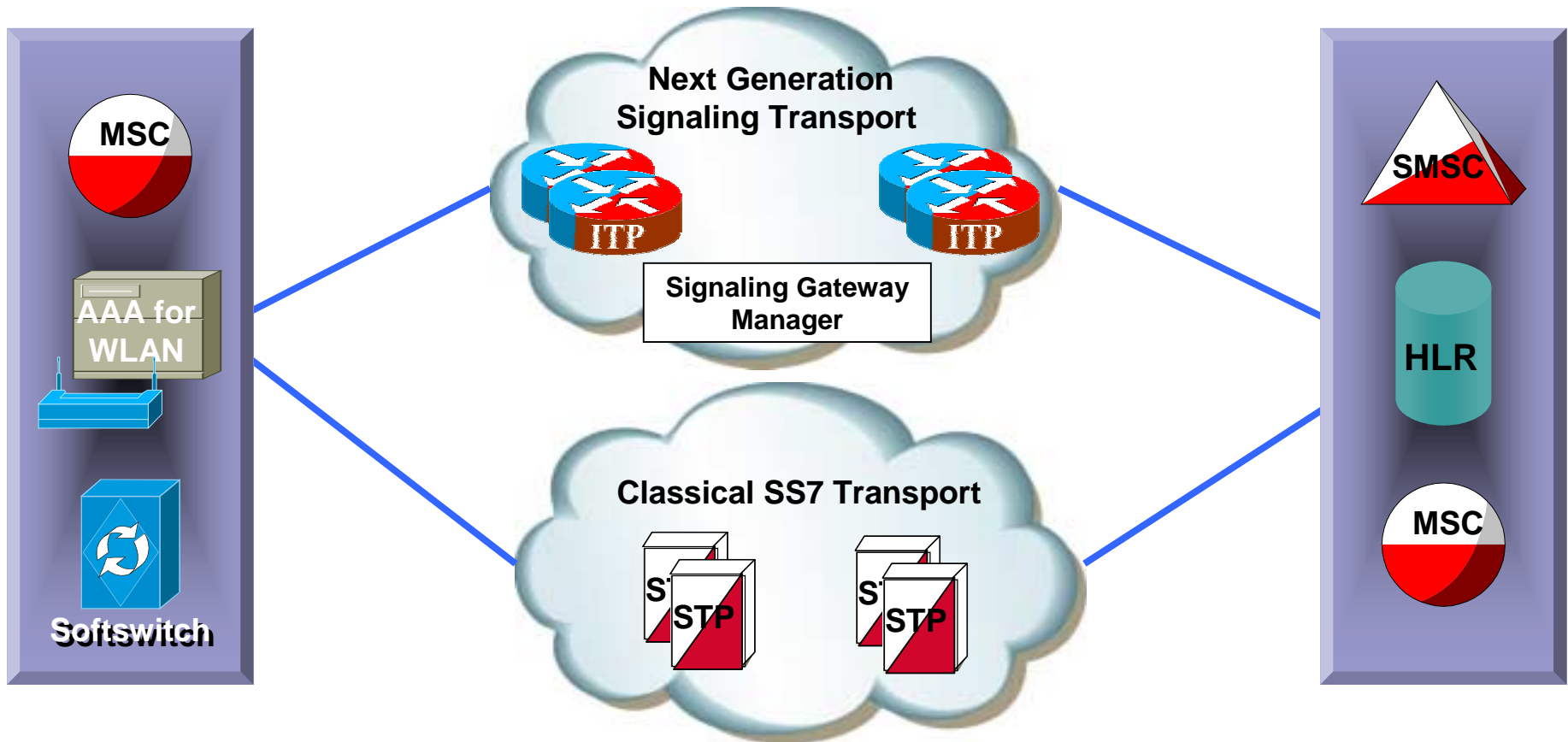
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Signaling over IP

Efficient Transport and New Services

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

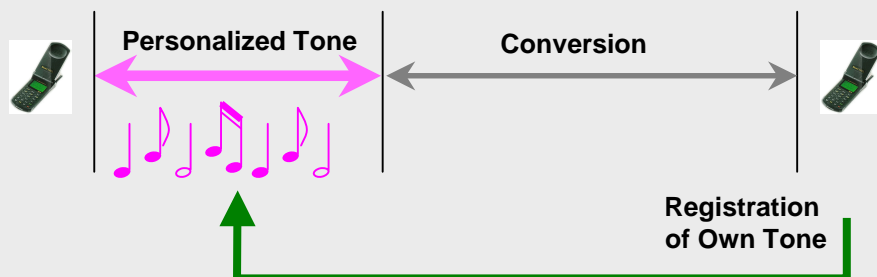
Signaling over IP

Custom Ring Back Tone Service

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User Experience

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



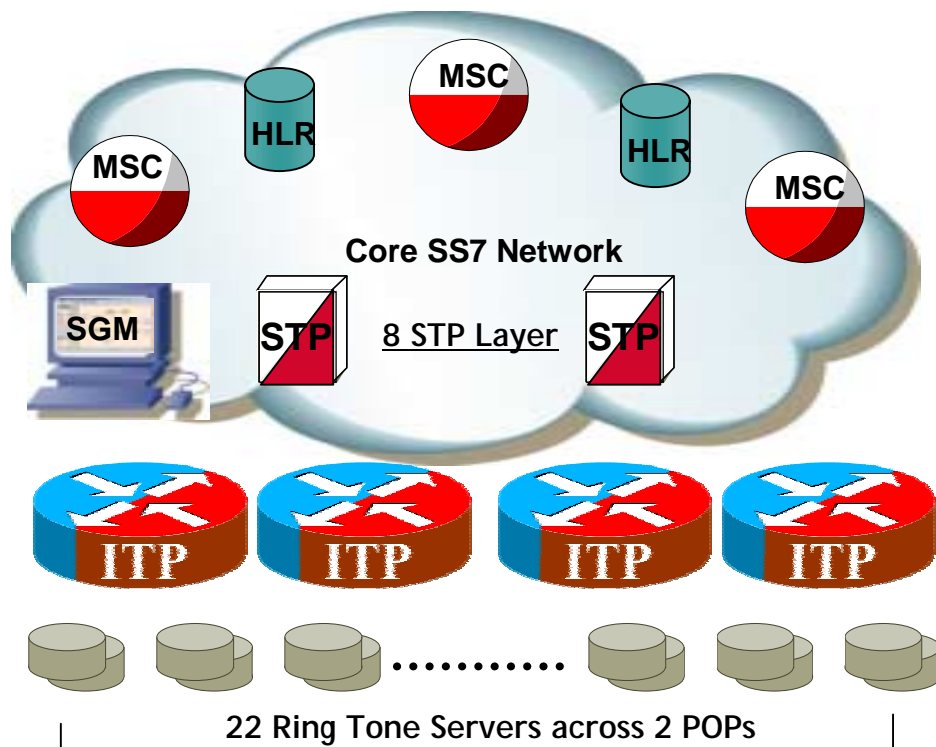
2 Ring



Color Ring

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

Network Architecture



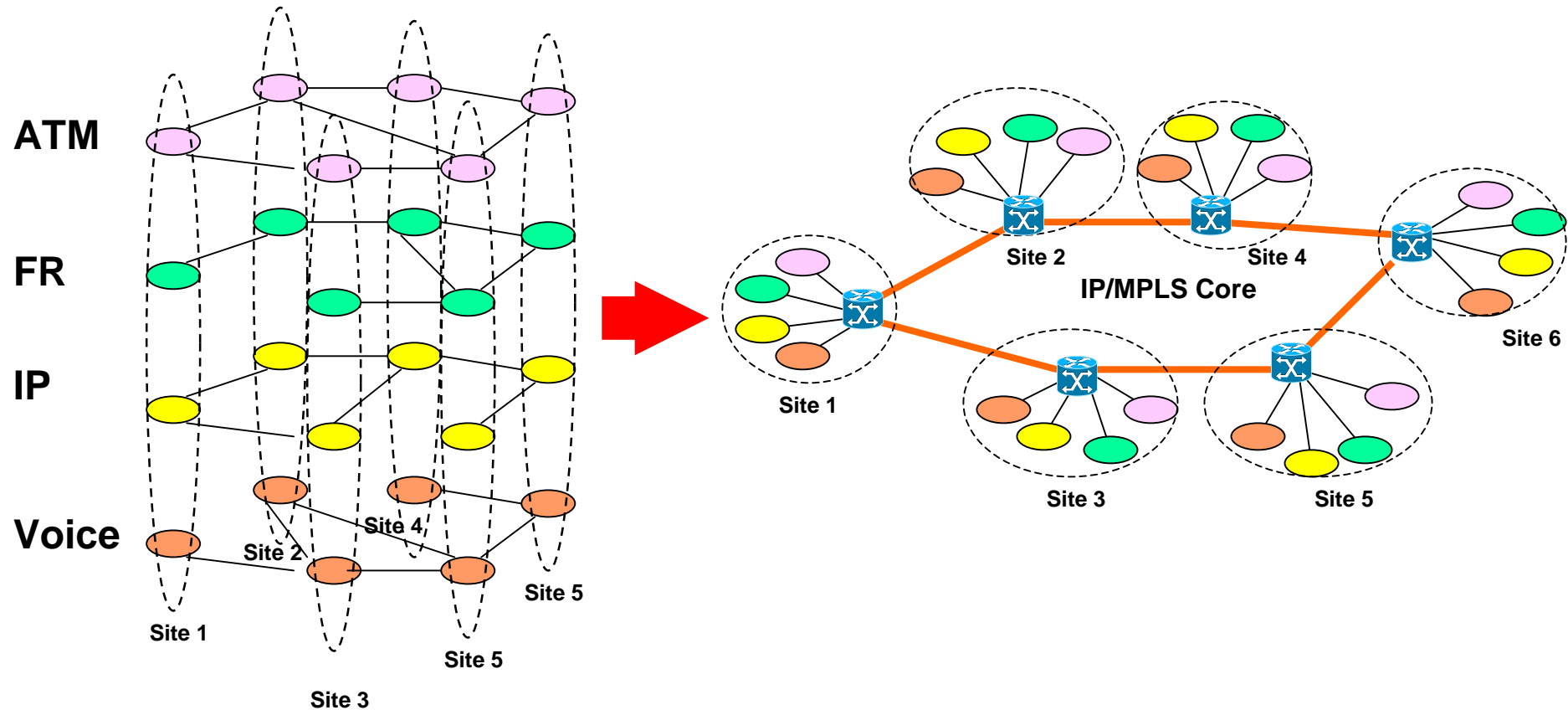
By end of first year, used by 34% of 19M subs

Triples number of SS7 messages per call – download per call

IP MPLS Core

Migrate disparate networks to single MPLS core

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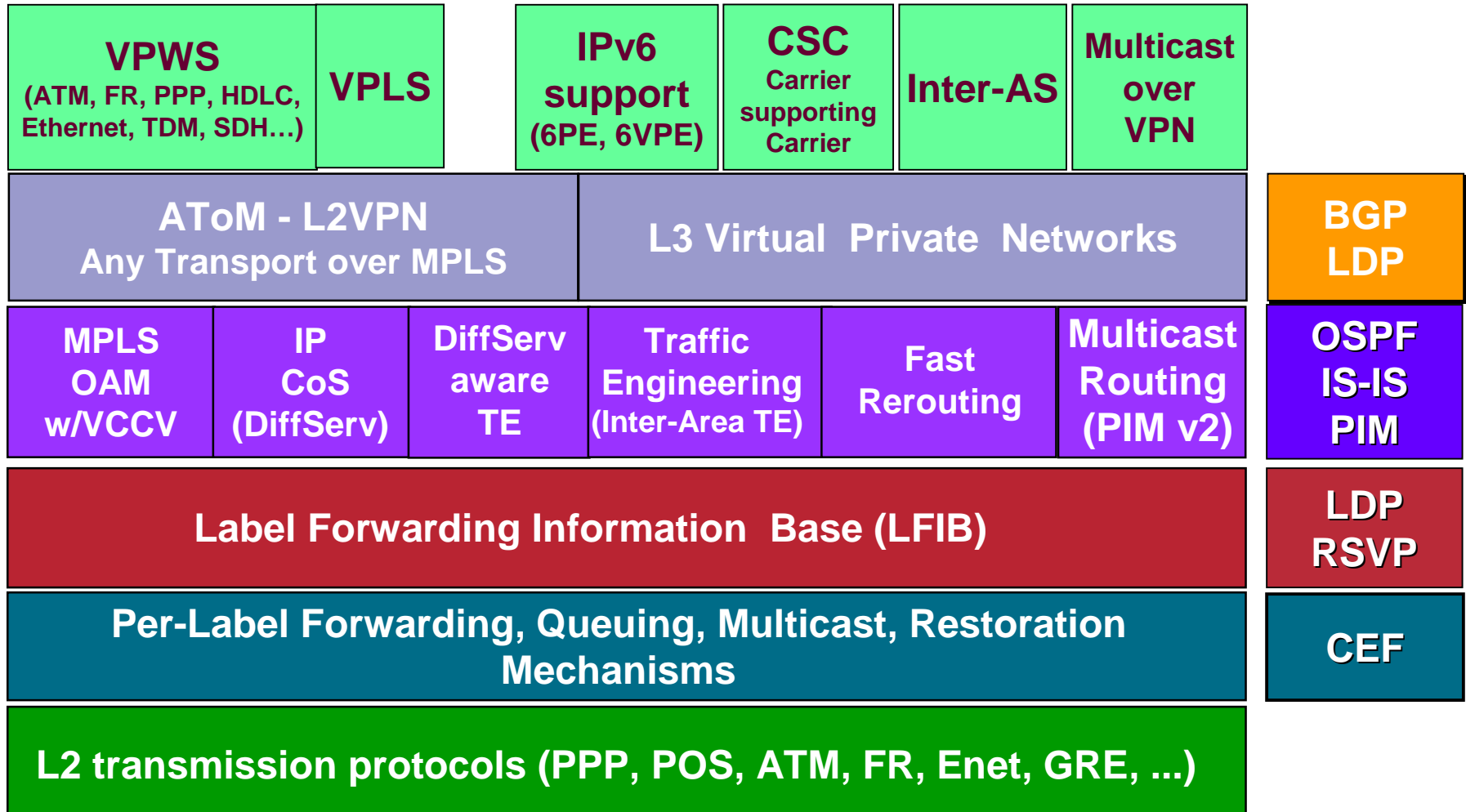
Many networks on common sites with different edge devices and transmission

Single network over high capacity transmission carrying all services

IP MPLS Core

IP MPLS Enabling Network Services

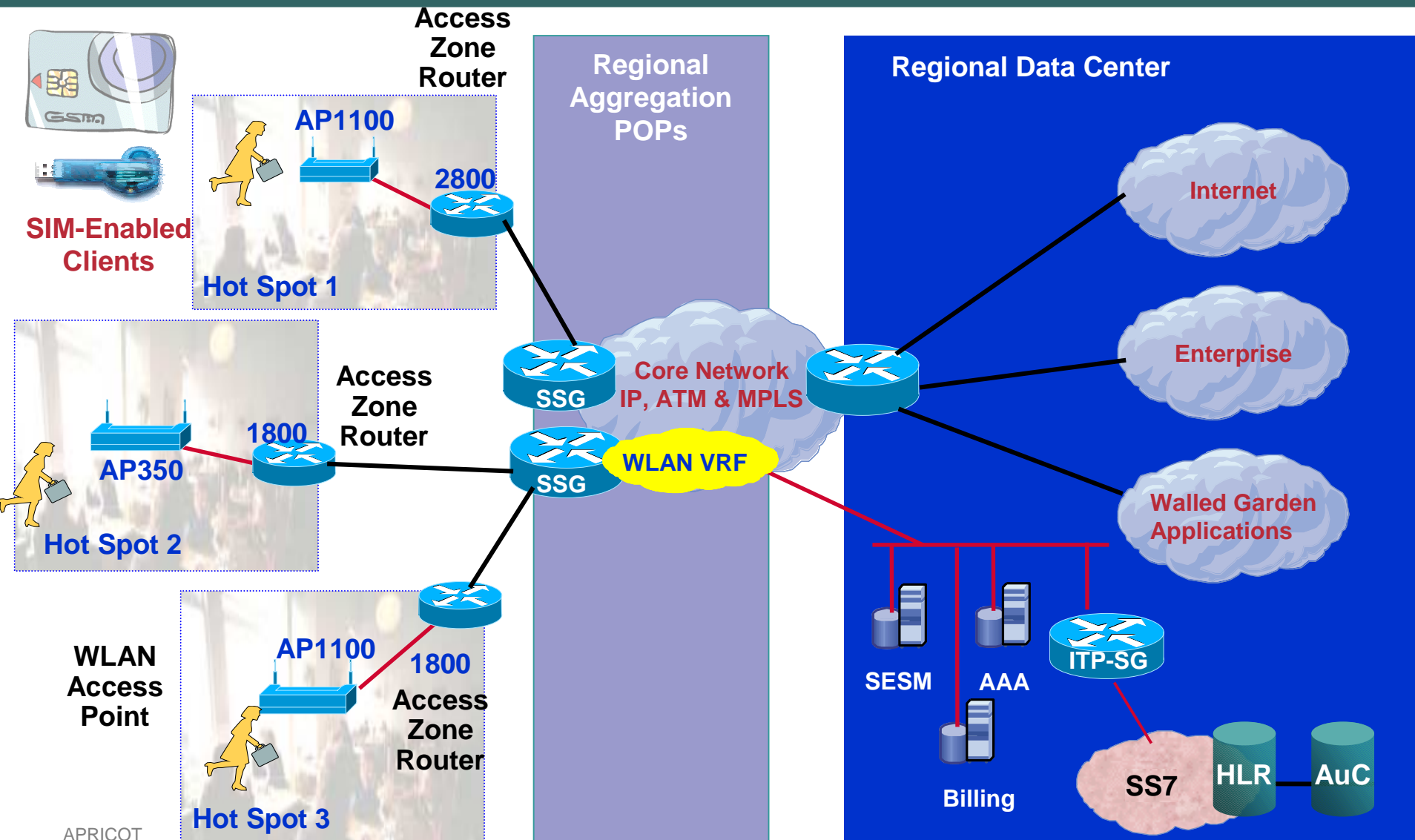
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Public Wireless LAN

Seamless Mobility and Roaming

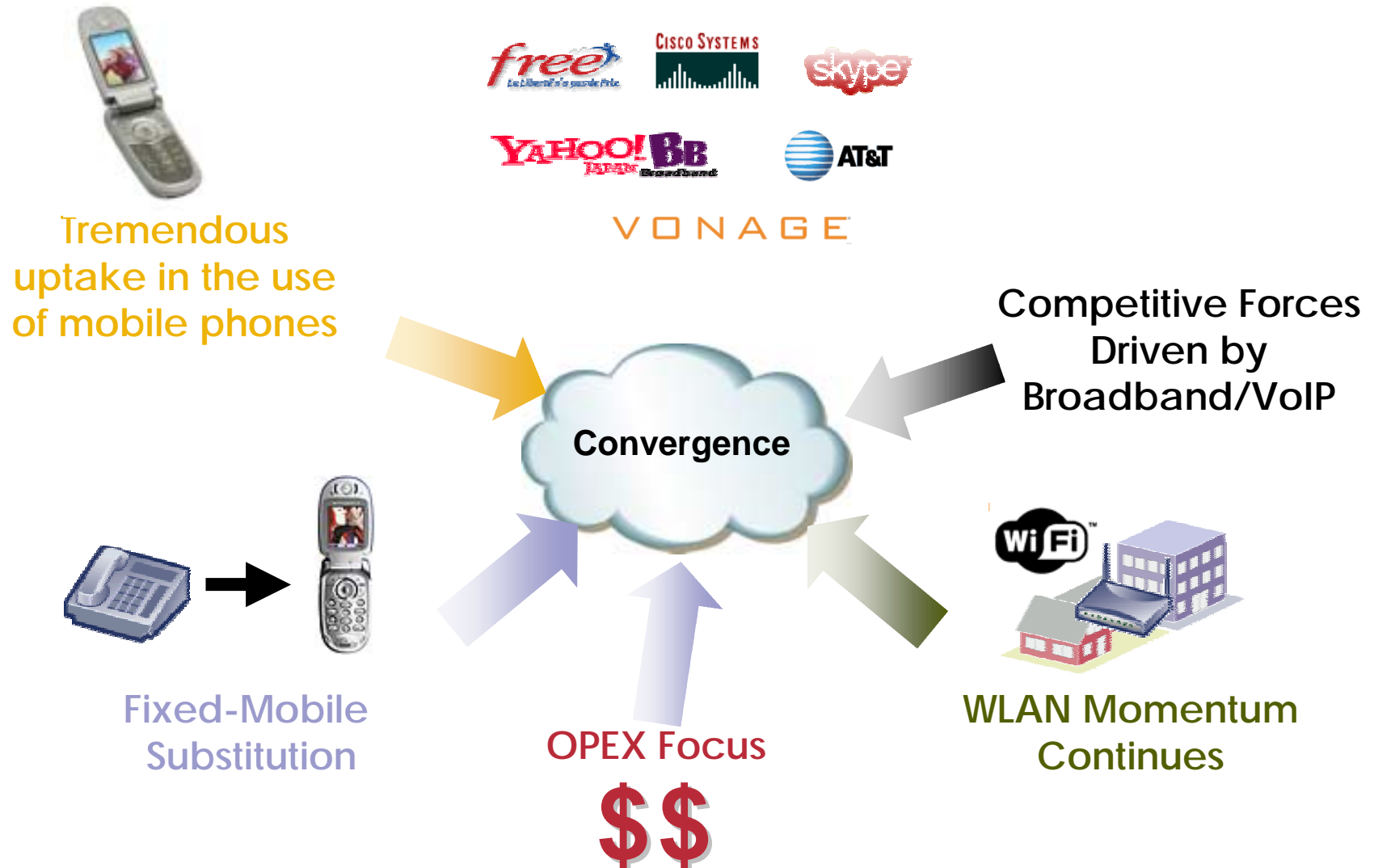
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Fixed-Mobile Convergence

Market Forces are Driving this Transition

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Fixed-Mobile Convergence

The Different Layers

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Application Convergence
IMS

Data-Oriented Convergence
MIP

Voice-Oriented Convergence
UMA

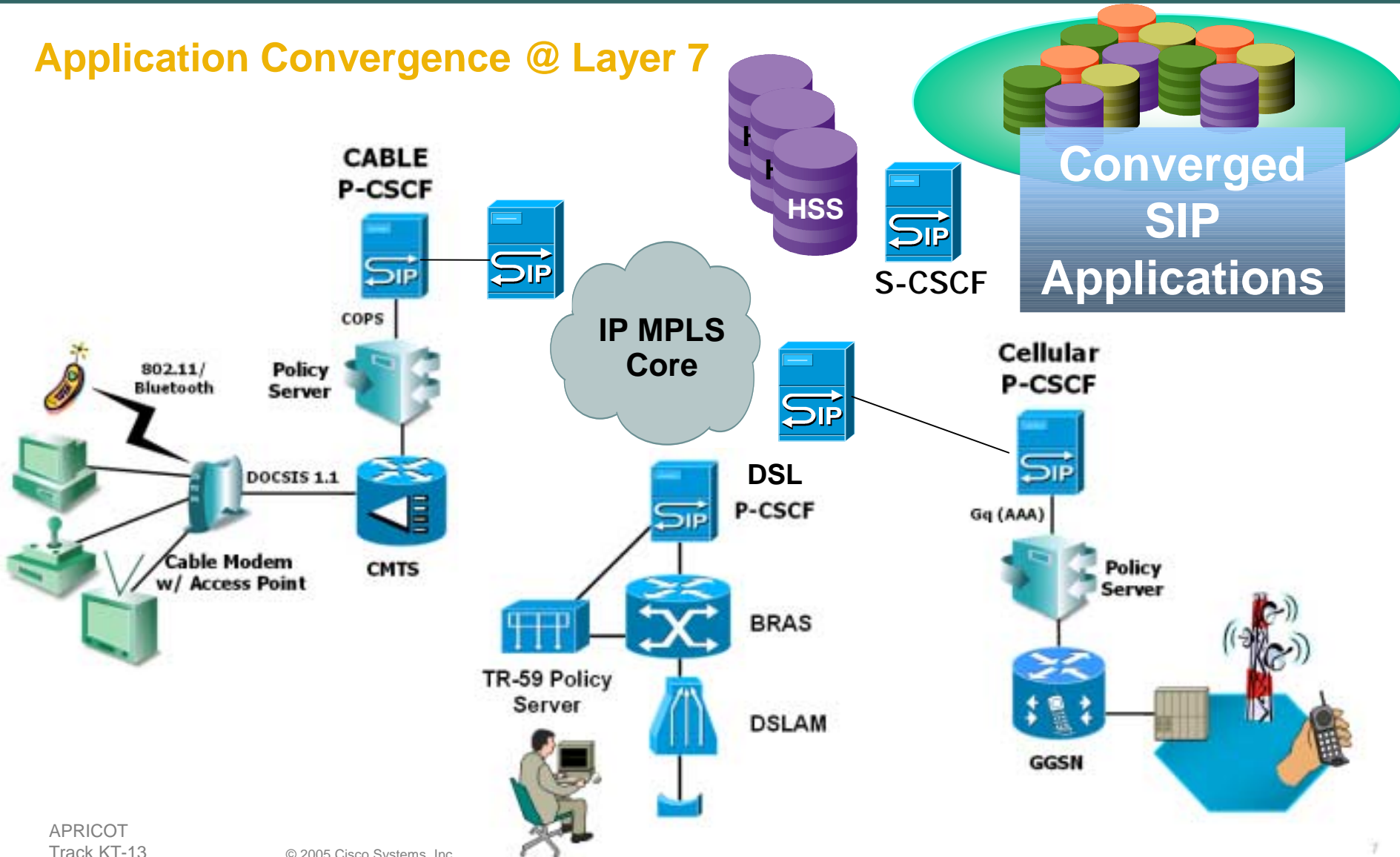
- **IMS Convergence with SIP**
Driven by ITU, ETSI-TISPAN and 3GPP
- **Mobile IP**
Driven by IETF, 3GPP2, and many vendors
- **Unlicensed Mobile Access (UMA)**
Driven by UMA forum and now 3GPP

Fixed-Mobile Convergence

IMS Convergence with SIP

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Application Convergence @ Layer 7



Fixed-Mobile Convergence

Mobile IP

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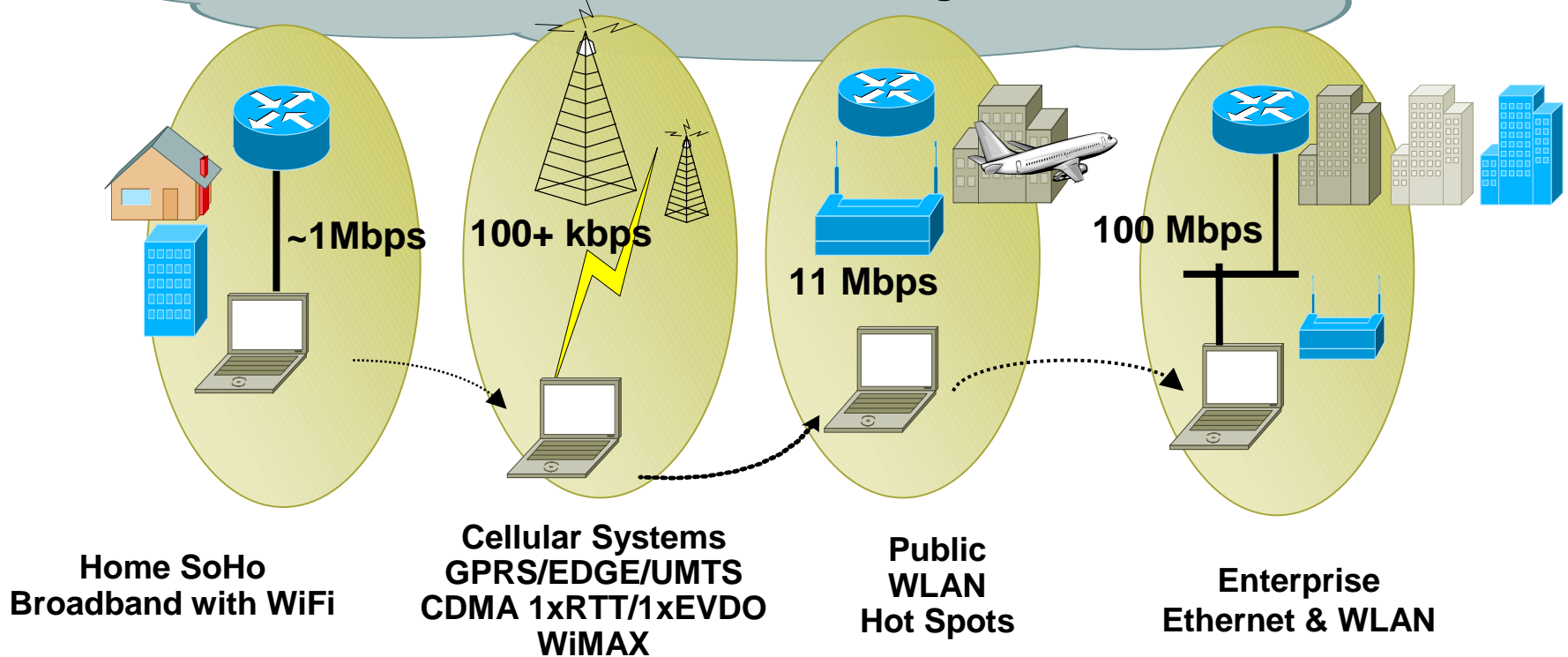
Data-Oriented Convergence @ Layer 3

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

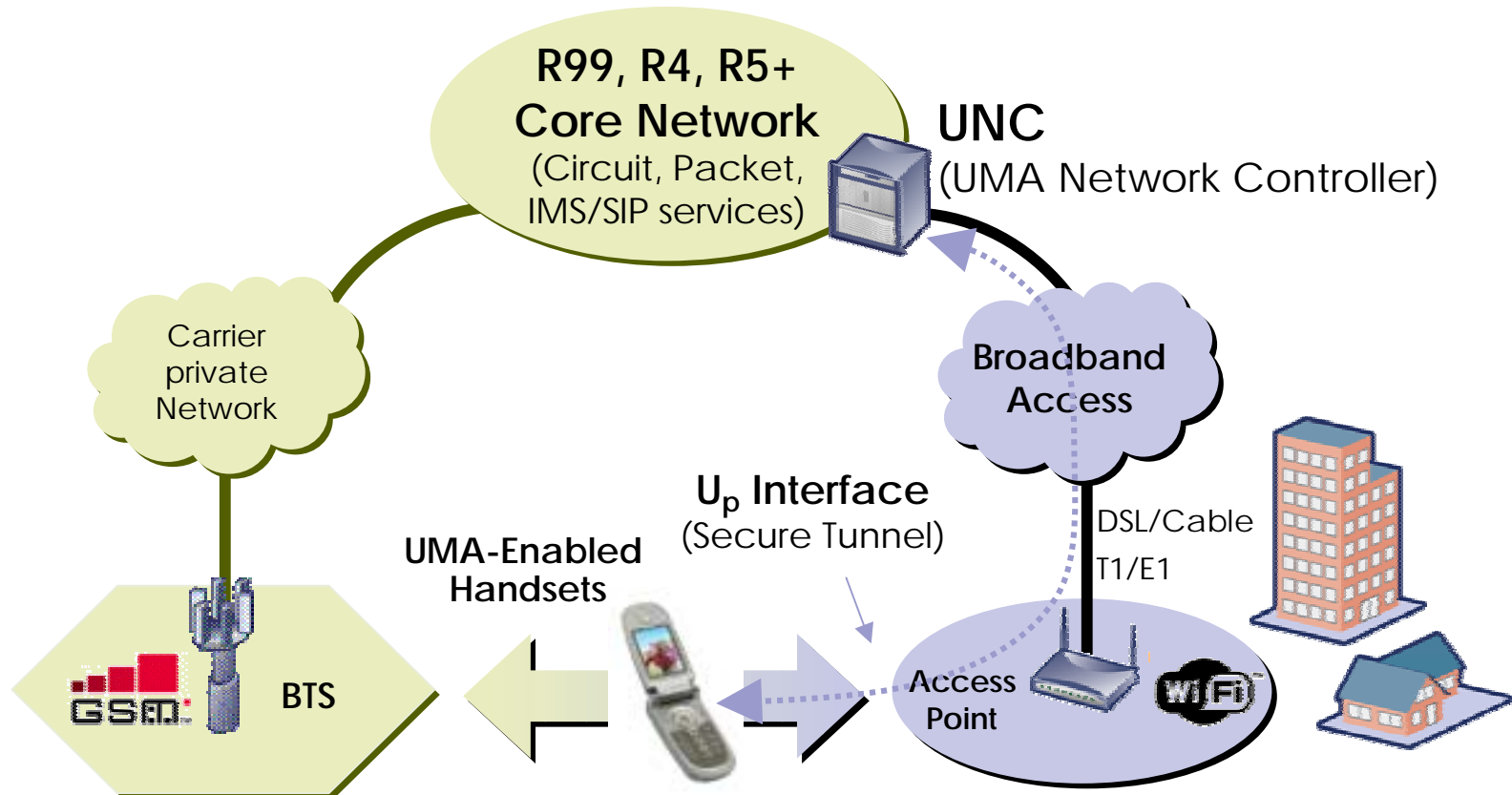


Fixed-Mobile Convergence

Unlicensed Mobile Access (UMA)

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Voice-Oriented Convergence @ Layer 2

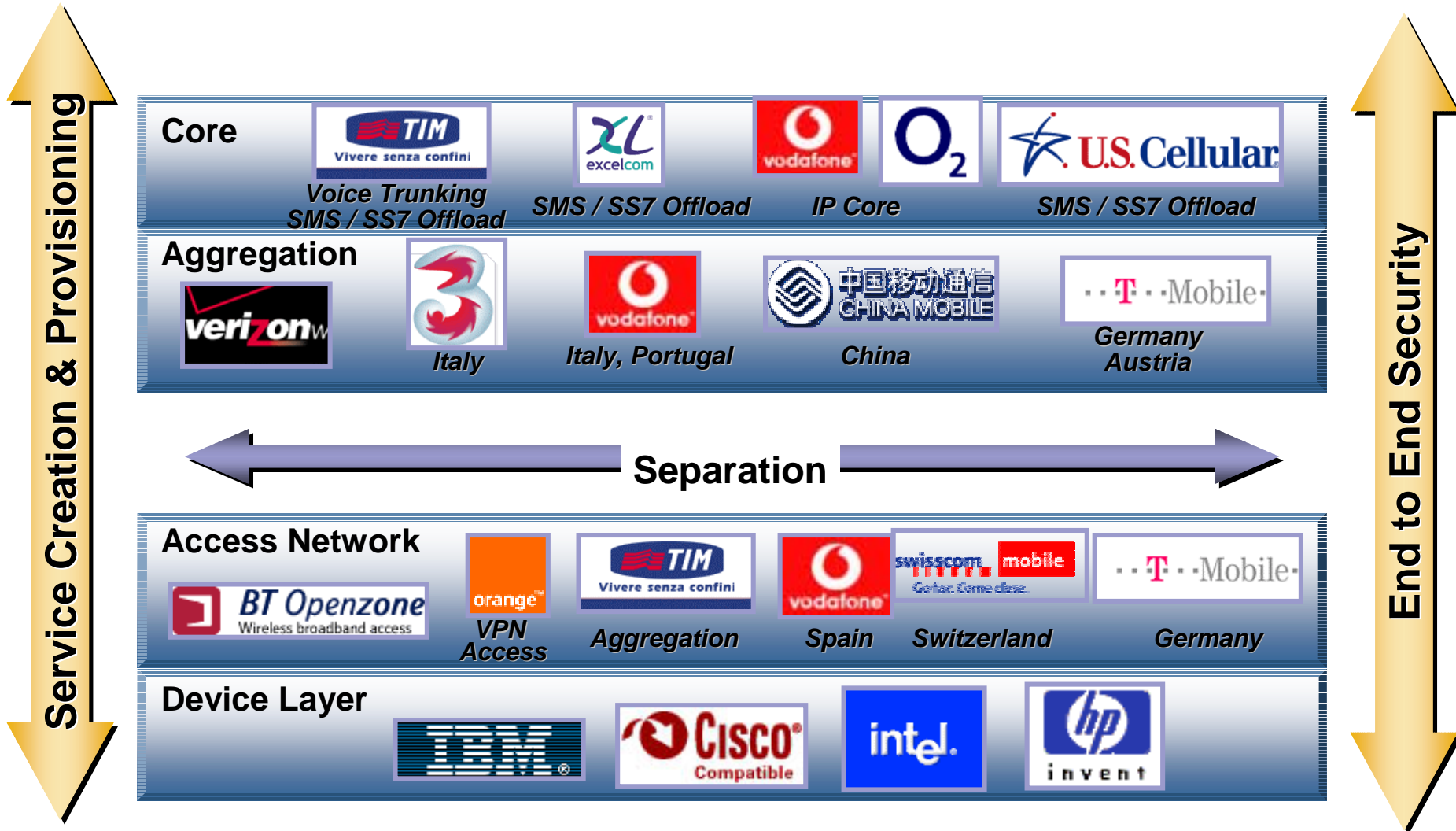


Strong consumer voice solution
Protects legacy investments
Relatively straightforward to implement

IP Convergence for Mobility

Impact of IP on Mobile Customers

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