

Multimedia Applications in a Converged World



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Convergence, VoIP, IMS and NGN

IP Transformation .. VoIP

- Lower cost of components and networks (CAPEX)
- Lower operations cost (OPEX)

Simplification

- Many new devices and services
- Each service – a separate network (e.g. Blackberry)
- Combine networks .. IP Core .. IMS

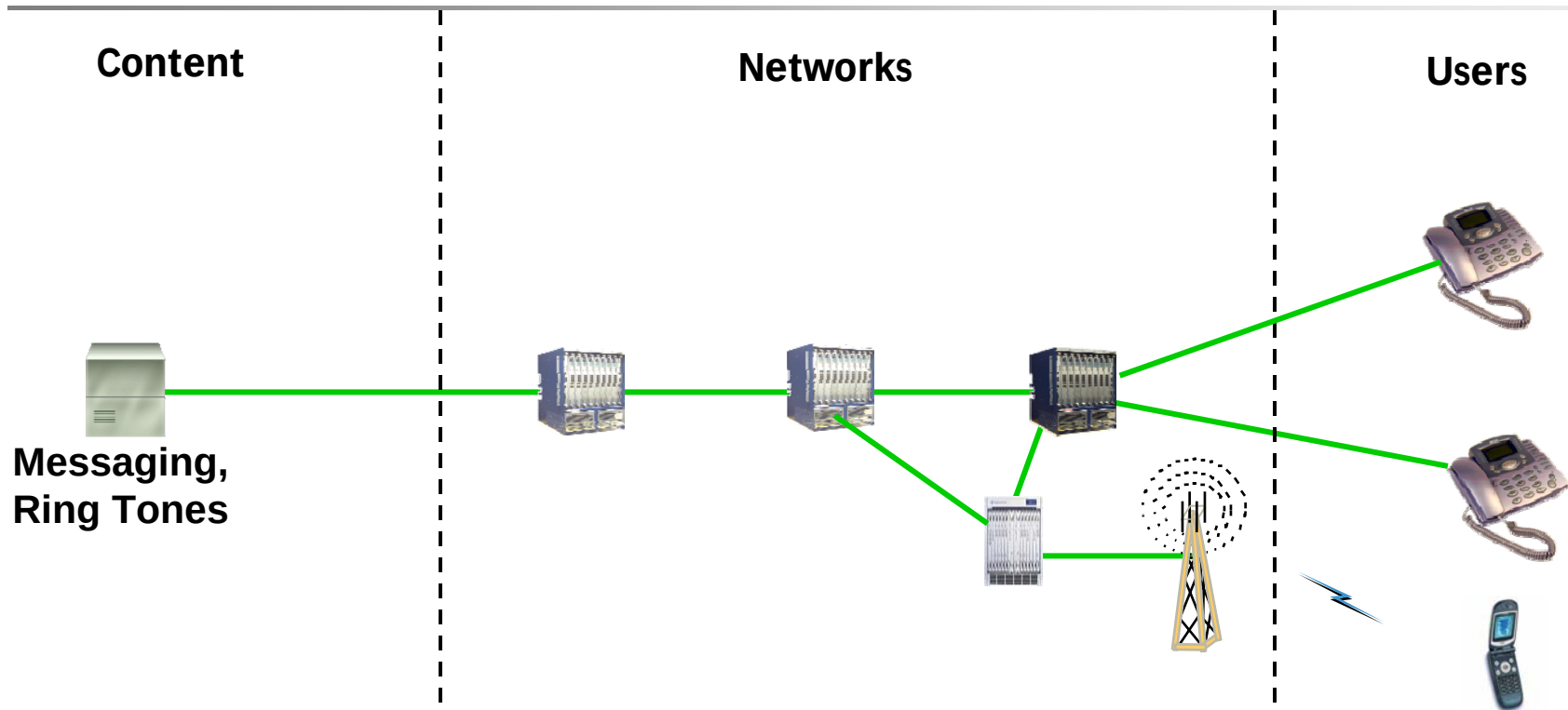
New Services

- Ring Tones, Video Mail, Location based services, etc.

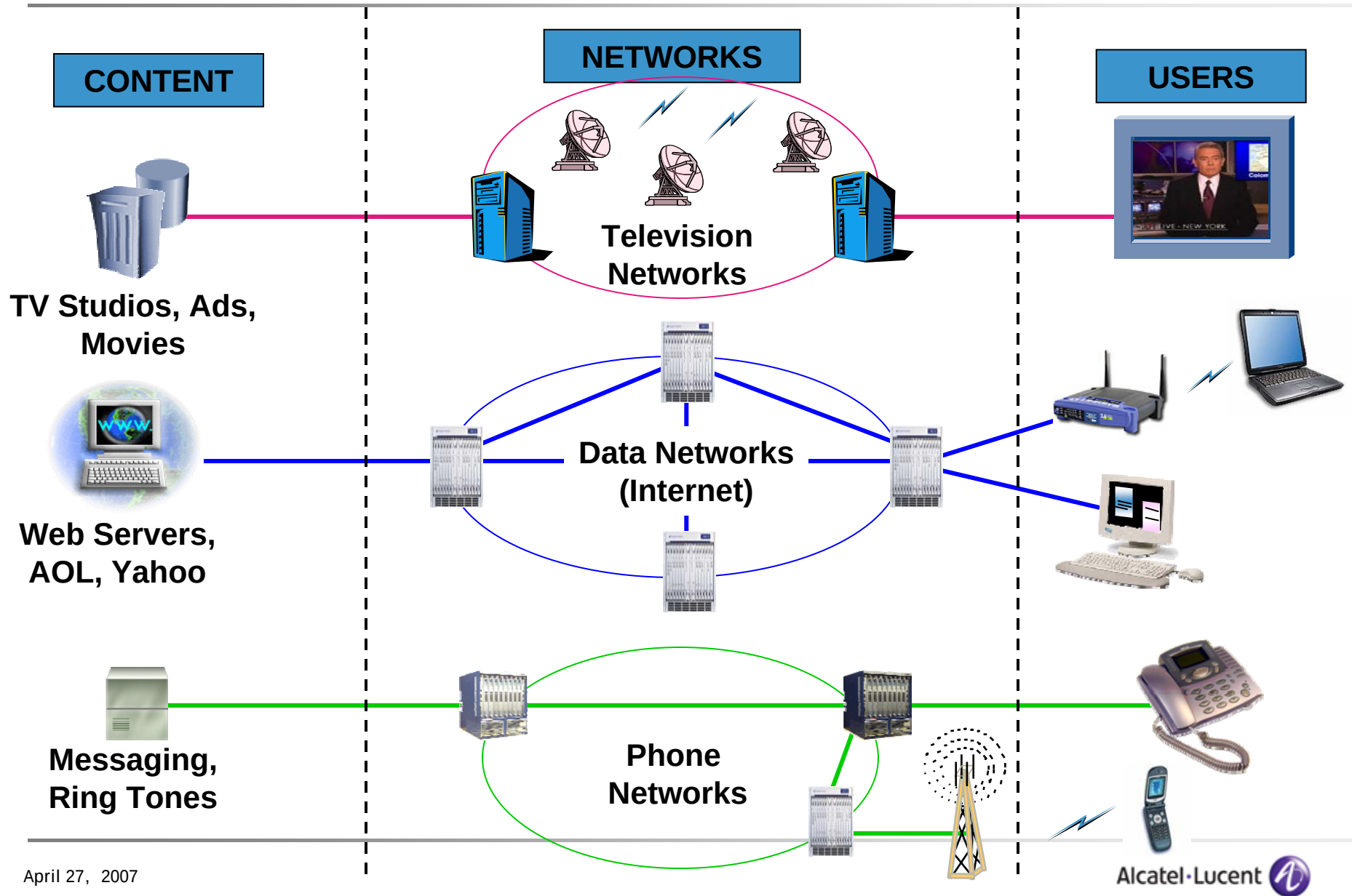
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Network Evolution Separation of Services and Networks

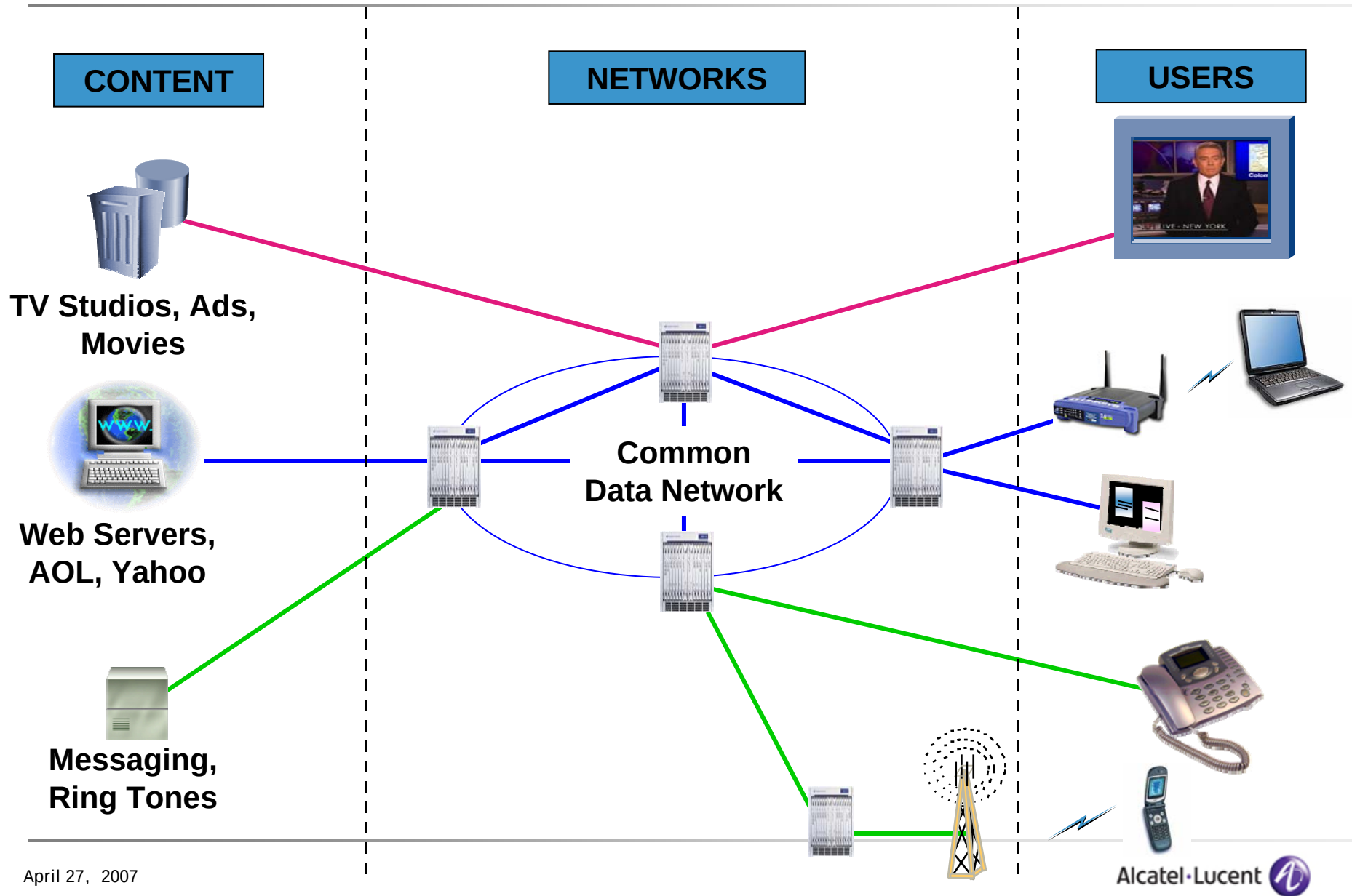
Single Service (Telephony) -> Single Network



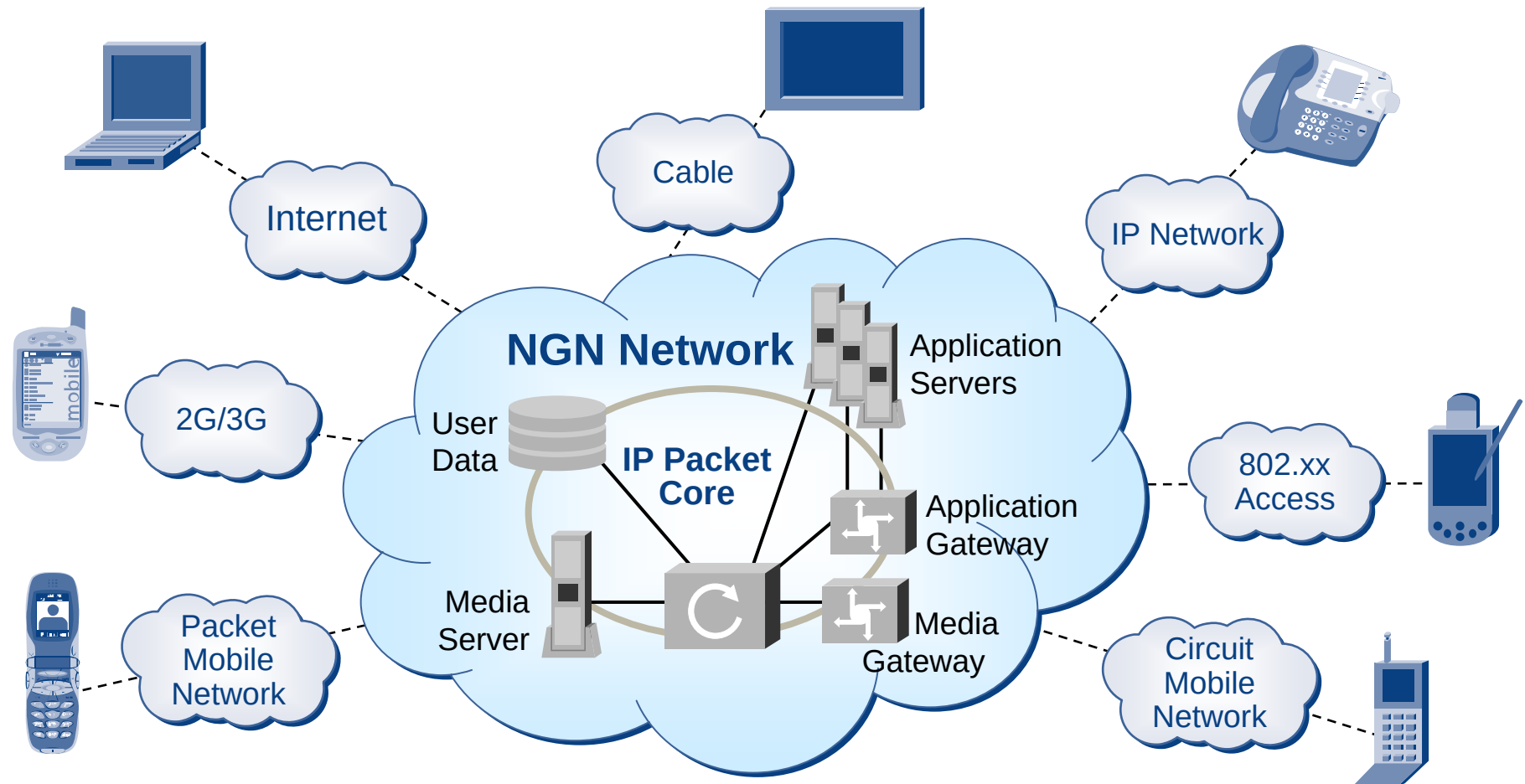
Multiple Services -> Multiple Networks



Hundreds of Services -> Virtual Networks -> Common Core



Convergence in the Core: Diversity at edge



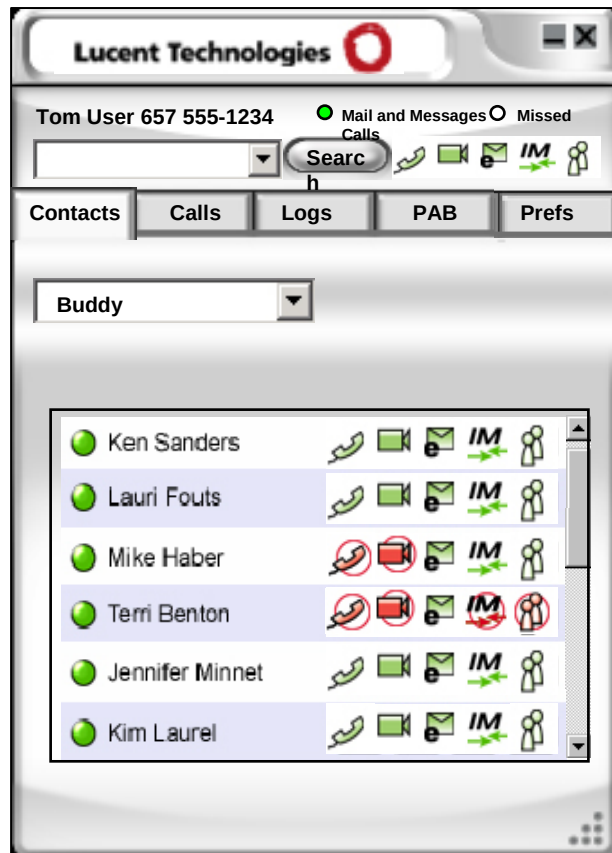
NGN: What's Needed?

- Common packet architecture/Protocols .. IP
- Common Addressing and Authenticaiton .. DNS, SIP addresses, URL,
- Common Signaling .. SIP
- QOS support for different media (MPLS, RSVP, RTP, etc.)
- Common interface standards for call control, gateways, service requirements, policies etc, ..IMS
- Support for new Service Oriented Architectures
- Support for distribution of intelligence .. Peer to Peer applications

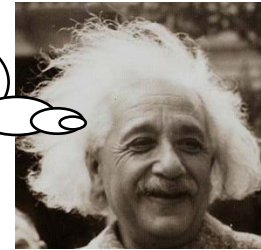
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Convergence for Users: New Services

Convergence for user: Active Phone Book



Bad hair day, no video for me, except for my family



I've done enough speaking for today, unless my boss calls

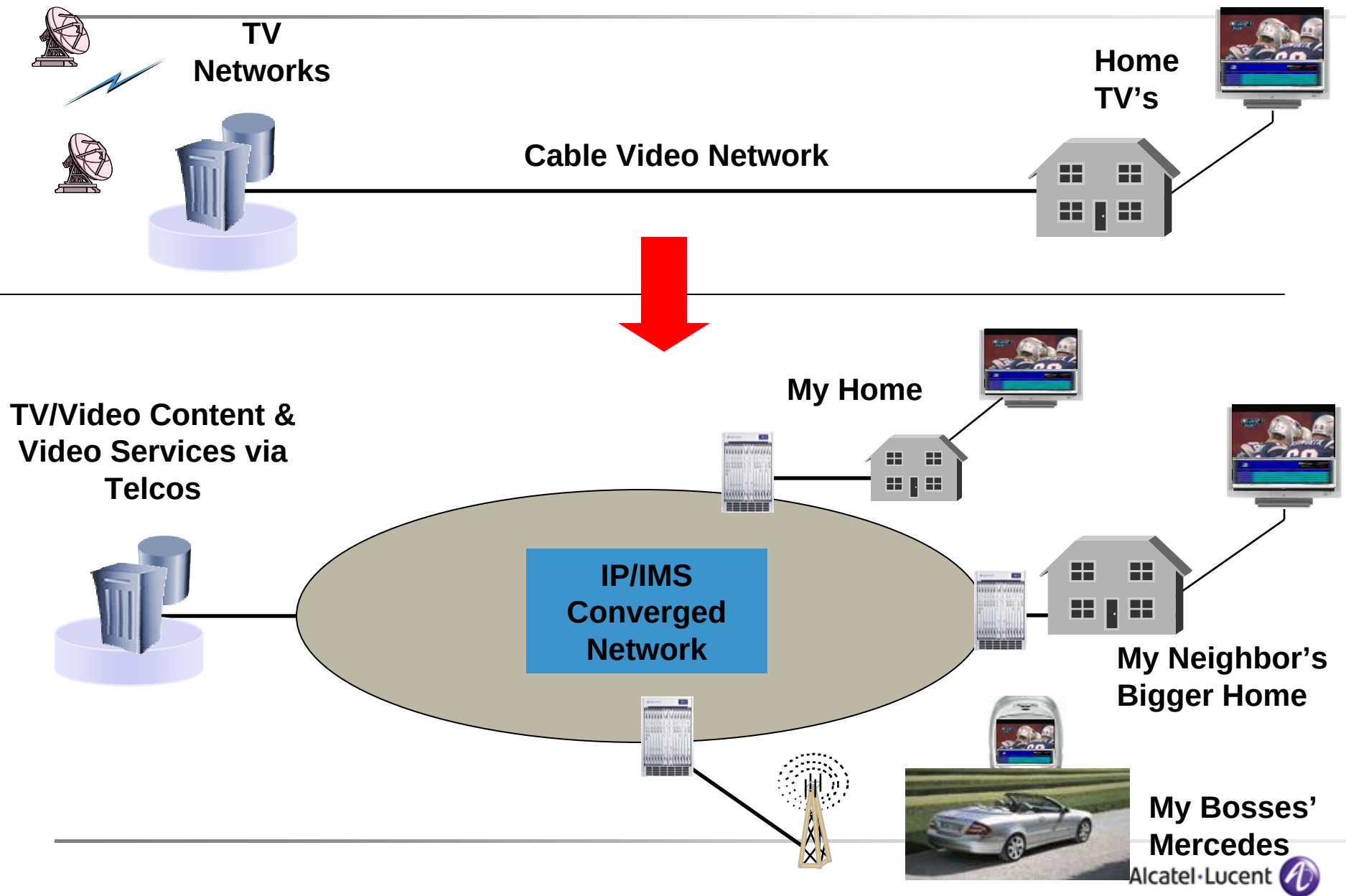


I'll be away from the desk for a little while, but friends and family can reach me



- Interpret raw presence to obtain availability that is filtered by
 - *Context, Preferences, Requester*

Roaming TV: Personalized video services anywhere



MapWeb: A Web application for location based Information and communication



Communication

- Phone
- IM
- Email
- Voicemail

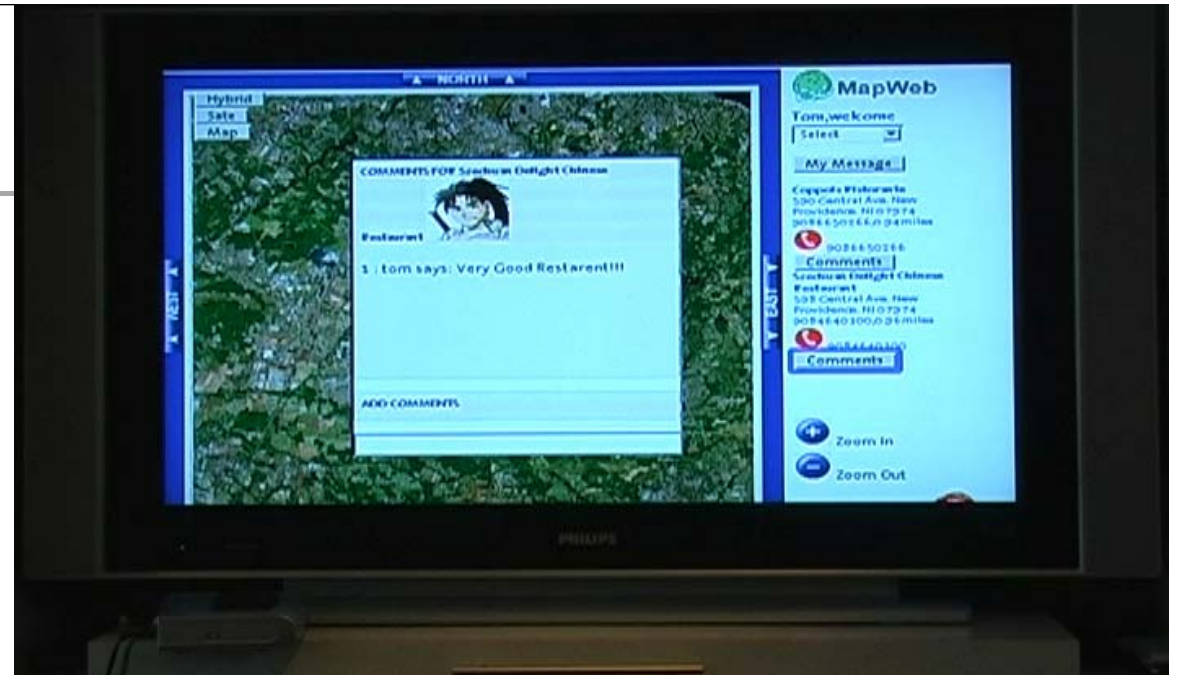


Show Map



Click2Conference

April 27, 2007



Click2Show Comments

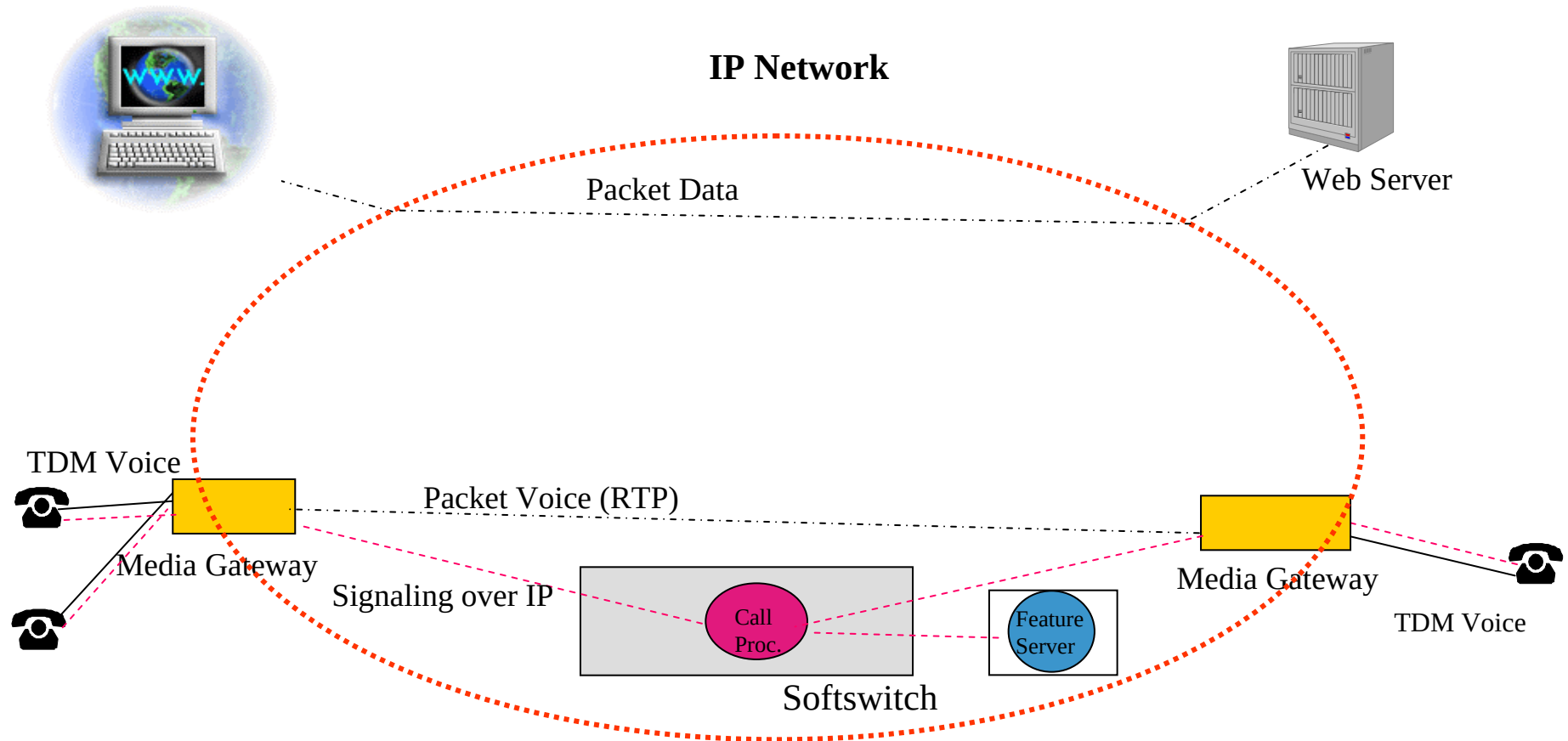


Search YP

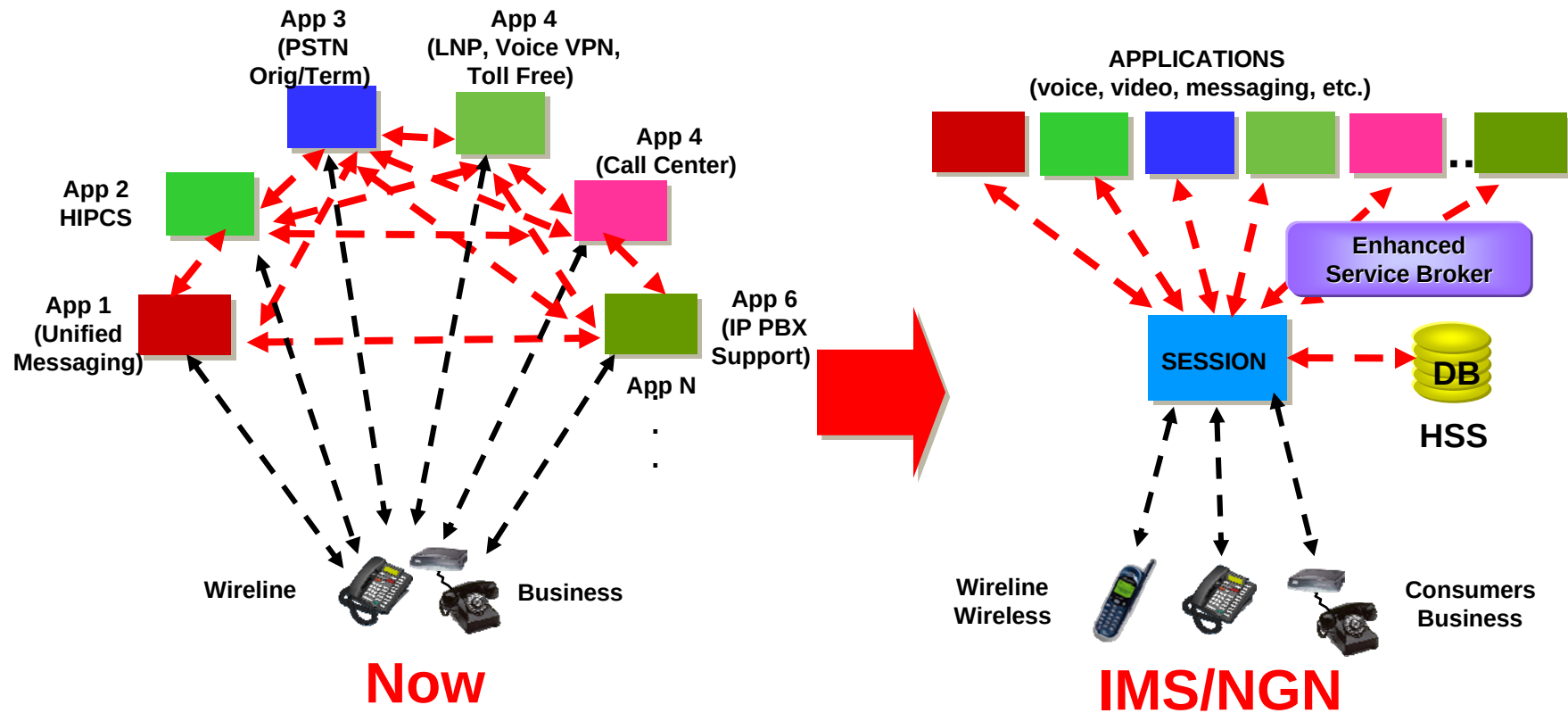
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Telephony evolution VoIP, Softswitch, IMS, NGN And Enablers

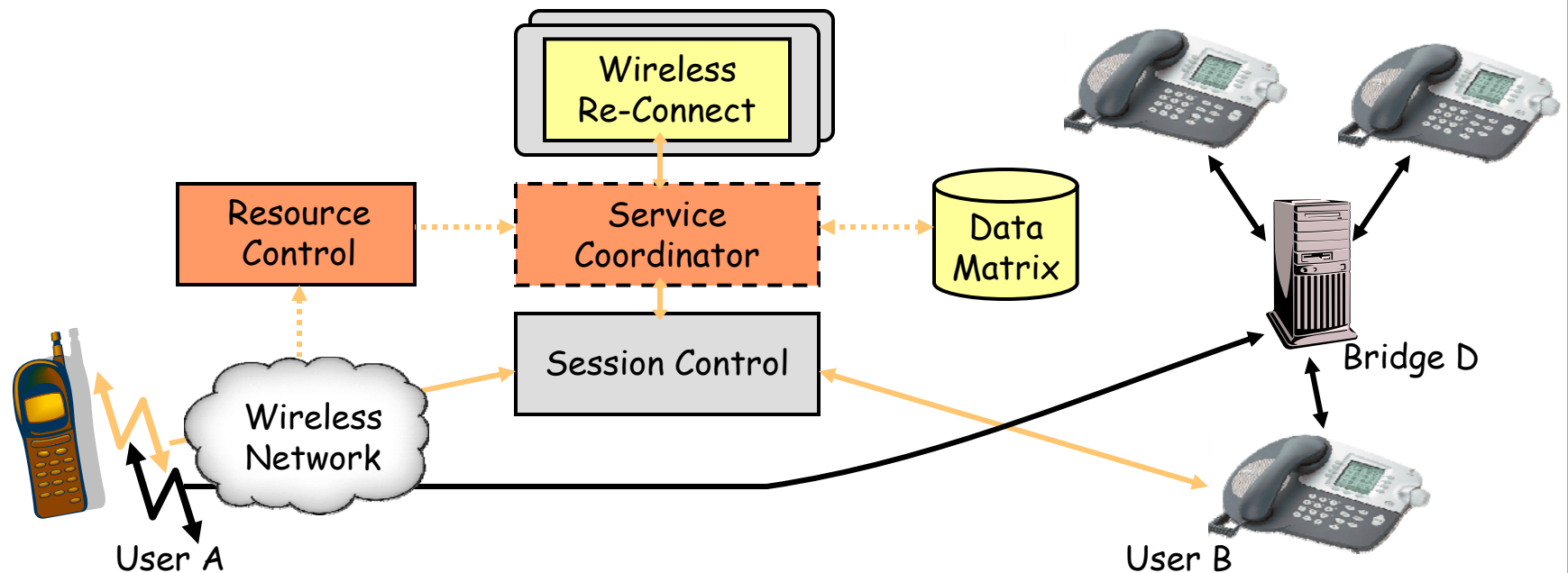
Voice on IP: Using Softswitch and Gateways



Convergence: Common Signaling



Application Interaction



Scenario: Cell phone user is in a conference call and has subscribed to wireless re-connect service. The cell phone user gets dropped.

- In this case, the re-connect announcement should not be played back into the audio conference (-> feature interaction problem).

Service Coordinator retrieves feature interaction policies (indicating that a media server should not be used) and notifies the Wireless Re-Connect application.

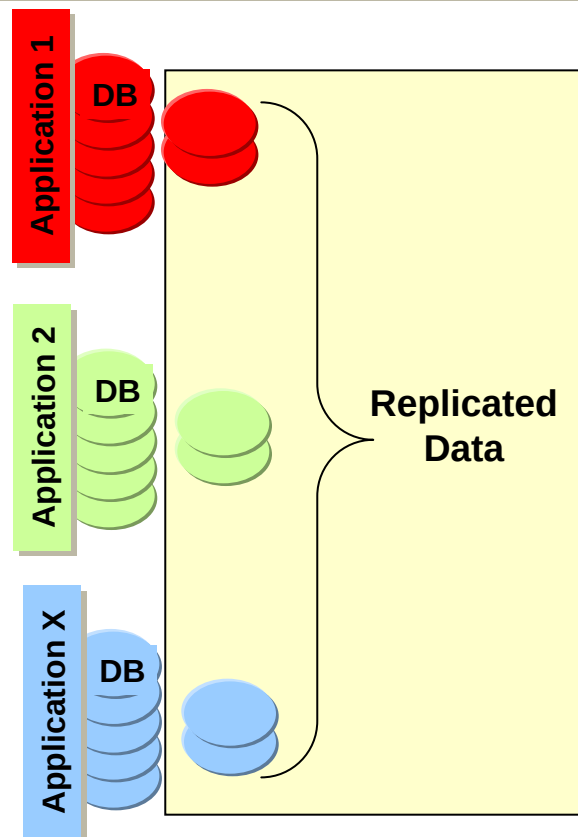
Wireless Re-Connect application:

- Connects the conference bridge to a call park server instead of a media server.

Convergence : Shared Subscriber Data

CHALLENGE

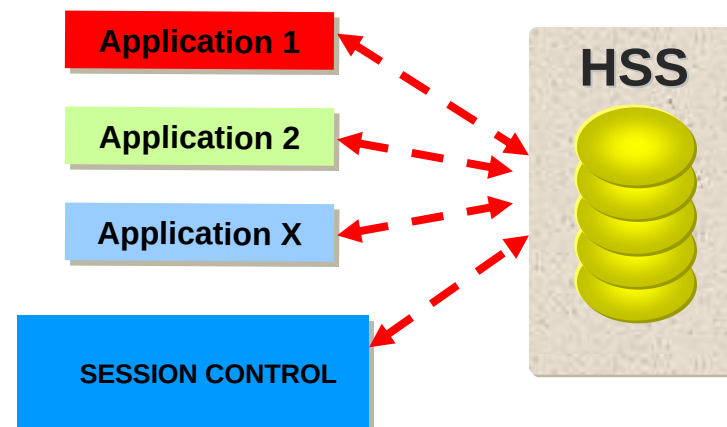
- Data replicated across applications
- Multiple Instances of user data
- Maintenance Issues



Now

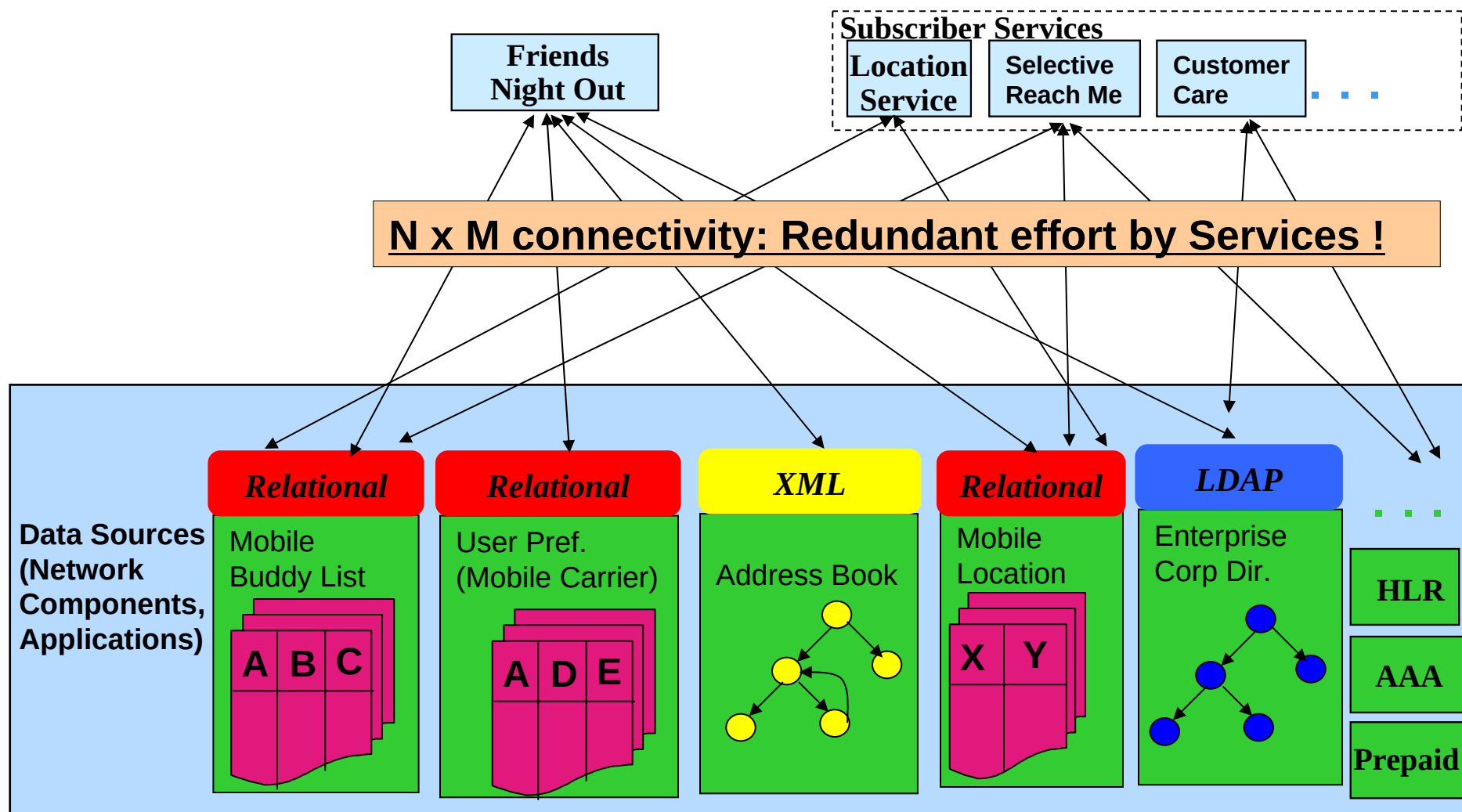
VALUE

- Common user data defined once and shared by all applications
 - Reduces CAPEX/OPEX
- Supports QOS Policies
- Proven, reliable Alcatel-Lucent SD-HLR product
- Scalable distributed high capacity model
- Eases application integration

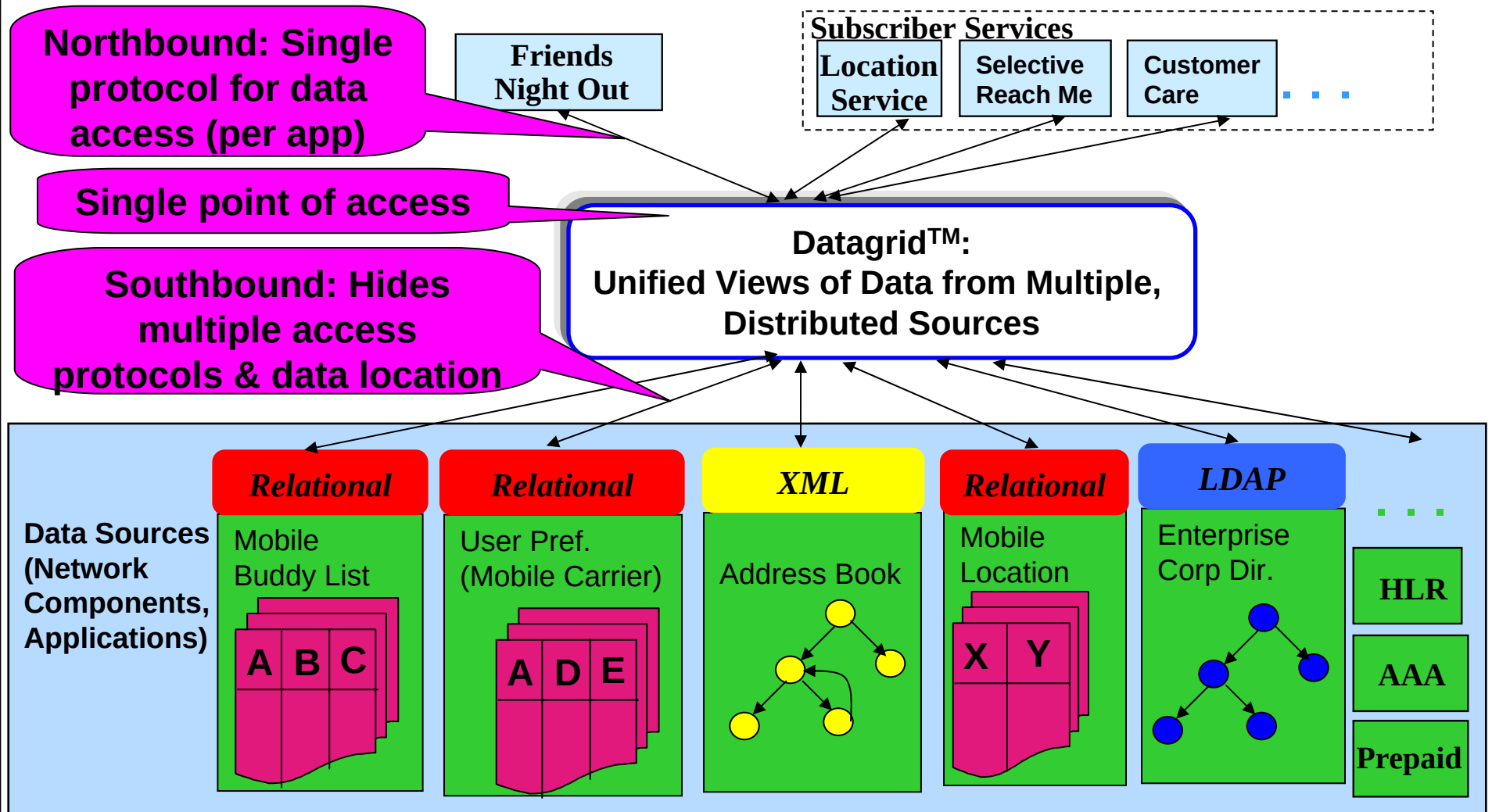


NGN

Problem: Blended Services Need Profile Data from Multiple Sources



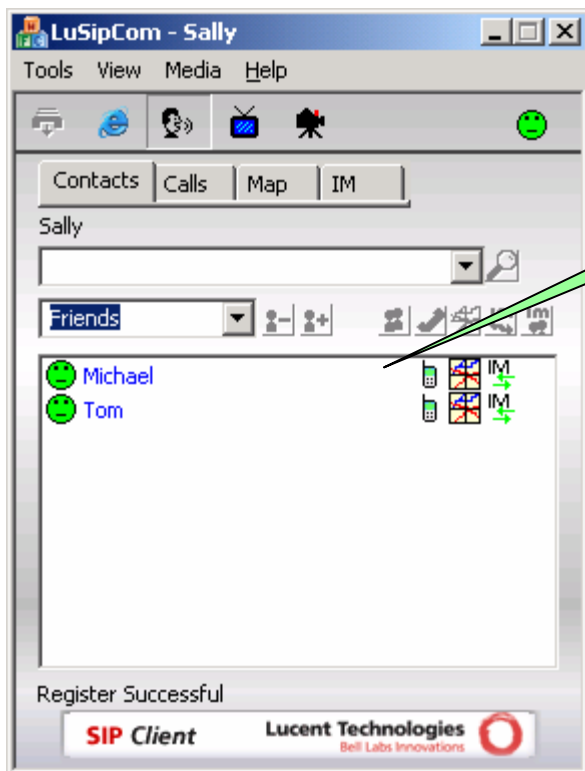
Alcatel-Lucent Datagrid™:



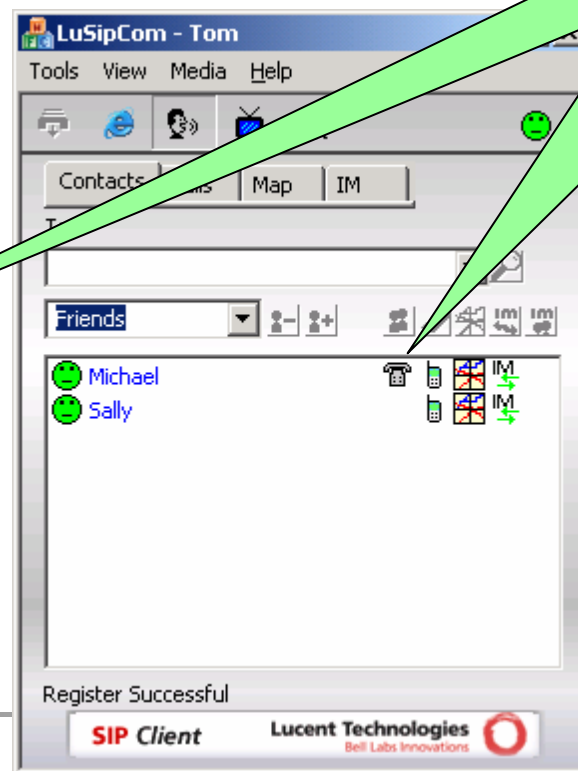
Friends Night Out

Requester-targeted
Context-aware
Preferences-driven

SALLY'S Handheld



TOM'S Handheld



Requester-targeted
Michael's work phone

- Not available to Sally
- Available to Tom

Context-aware, e.g.,

- If Michael goes into a phone call, then he becomes unavailable to others by phone

Friends Night Out

My Privacy Settings Demo EC ...

Settings > Contexts > Context: Work

Context: Work

Title:

Context Activation

Locations: (multiple selections ok)

- Any Location
- All known locations
- All unknown locations
-
- North NJ Office
- Reston VA Golf

Schedule:

From: :

To: :

Context Personalization

New	Contacts/Groups	Variations	May contact me on		
			Desk phone	Mobile voice	Mobile IM
▽	Corporate Directory	On the phone	No	No	
△▽	Corporate Directory	In meeting	No		
△▽	Corporate Directory	Any	Yes	Yes	Yes
△	All Contacts	Any	No	No	No

User can identify multiple “contexts”

- Defaults include work, family-time, leisure
- Grow to include, e.g., work-busy, spouse-time,

Coarse-grained indicators to network of when user is in a given context, based on, e.g.,

- Location
- Time-of-day/Day-of-week

Fine-grained preferences re availability (in Work context)

- “On the phone”
 - Available by IM to colleagues, not others
- “In meeting”
 - Available by cell or IM to colleagues
 - Not available to others

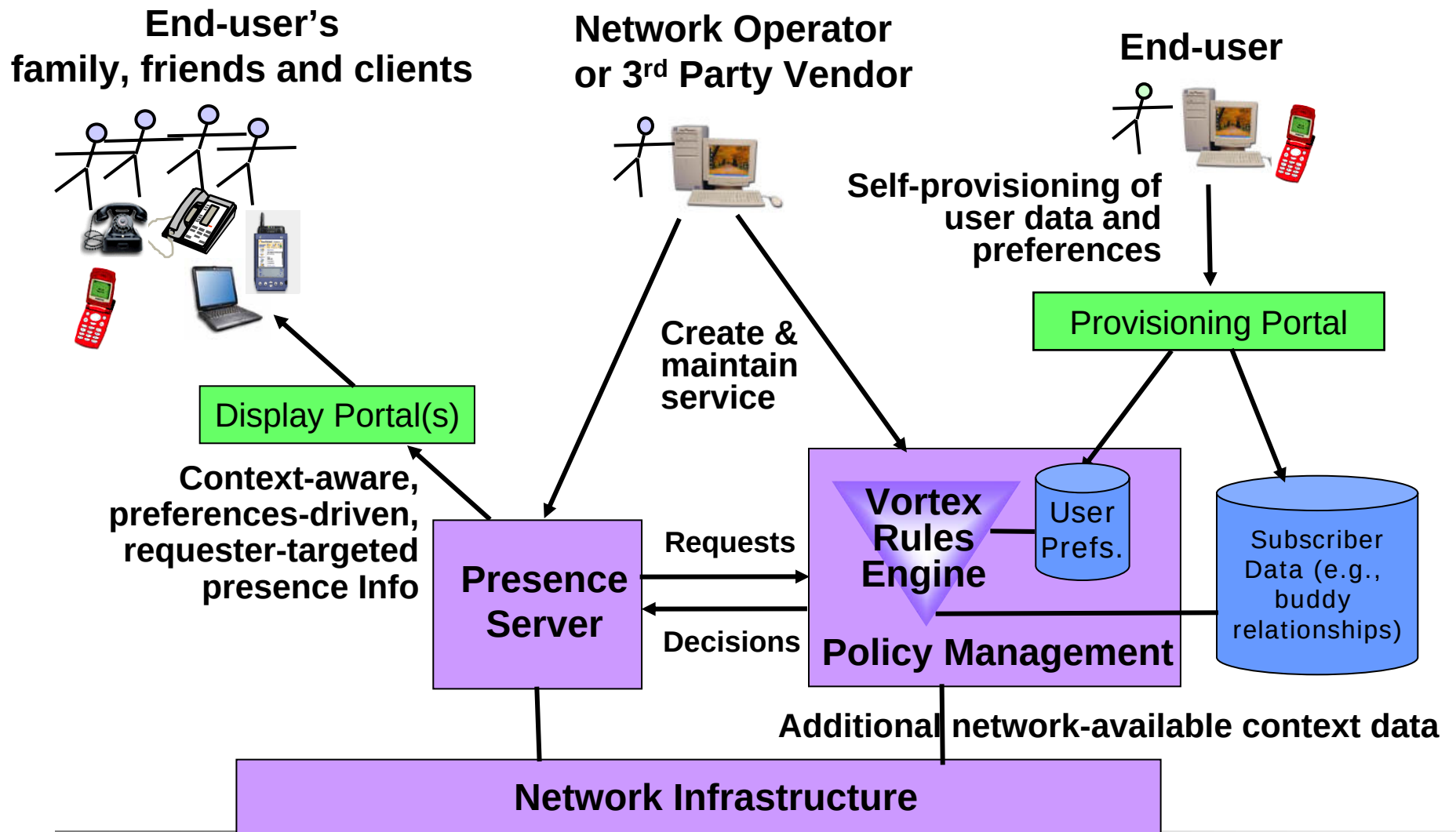
End-user can set

- Preferences
- Overrides

From

- Web browser
- Handset (planned)

Personalization of Presence with Vortex



Policy Reference Architecture

(as found in, e.g., IETF and Parlay/OSA)

Policy Decision Point

- the component making the decision
- the decision in itself does not have any impact or side-effect

Policy Enforcement Point

- the place in a component that enforces the decision
- can be multiple Enforcement Points within a component

Policy Execution Point

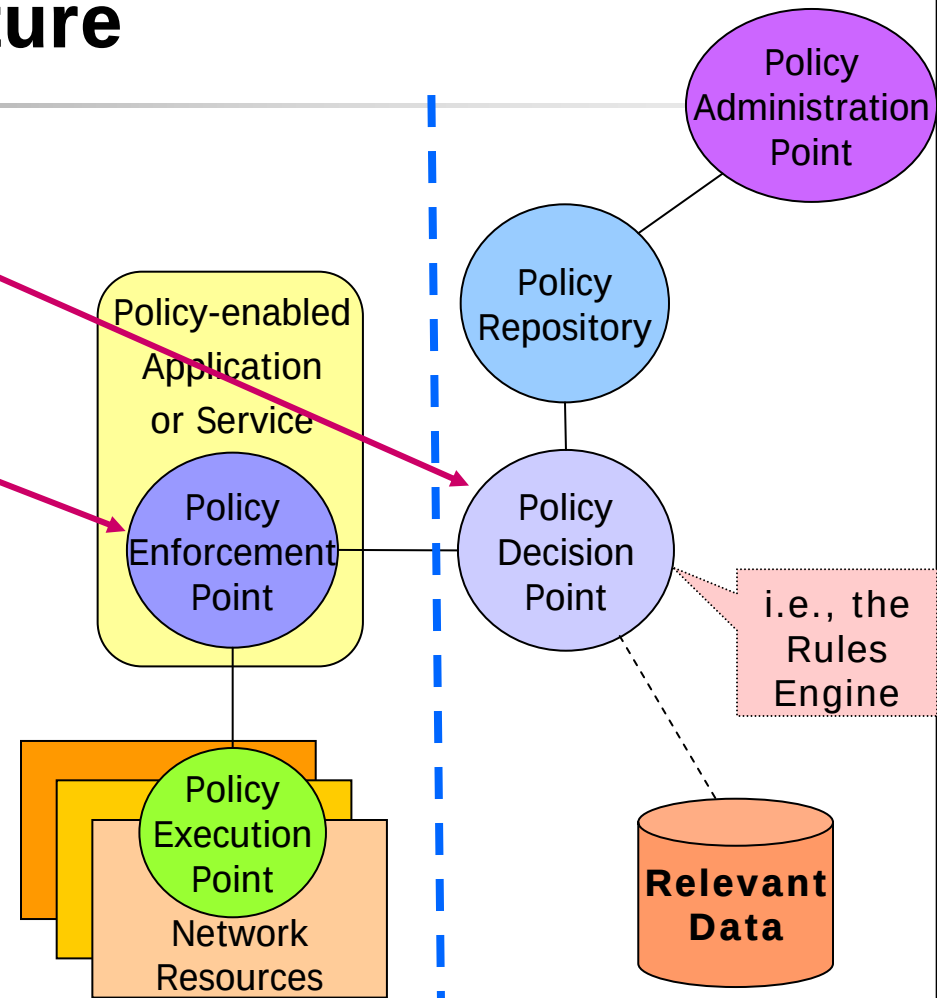
- the place in a component actually performing the enforcement
- (sometimes merged with Policy Enforcement Point)

Policy Repository

- the component storing the policies

Policy Administration Point

- for provisioning, checking policies



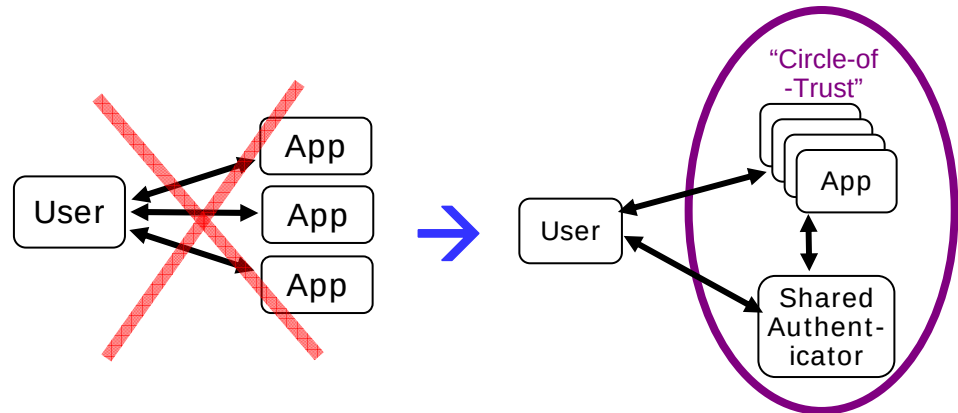
Separation of components forces

- Deliberate input/output perspective on decision requests
- Structured, more reliable use of policy engine

Identity/Data Federation: Key Capabilities

User / Identifier / Device mappings

- Service access seamless across identifiers, layers, devices
- Authorization separate from device

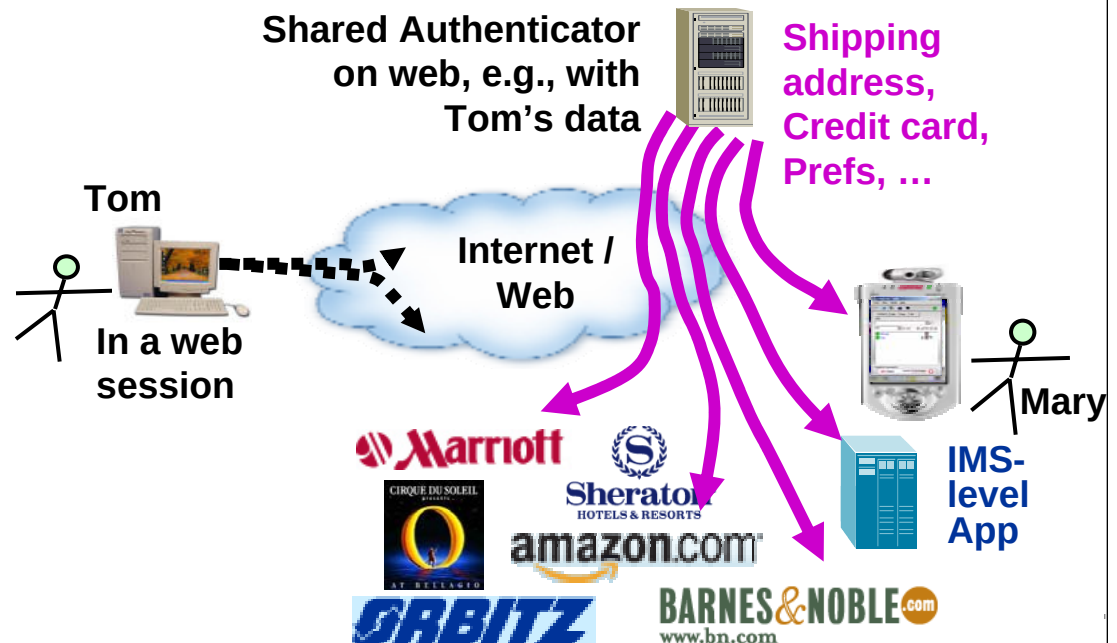


Single Sign-on (SSO)

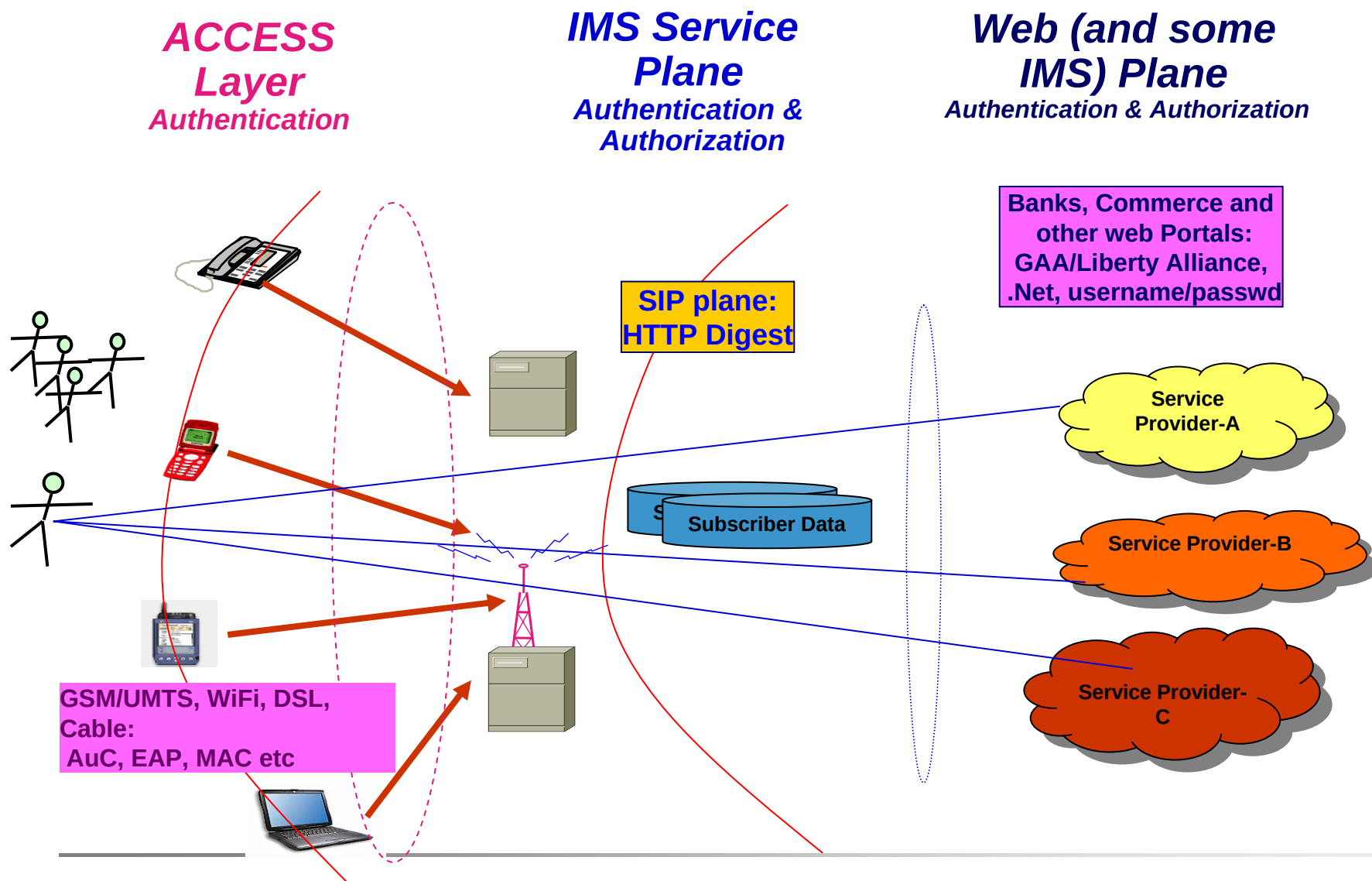
- User does single log-on
- Has access to many apps
- Generalizations needed to telecom

Secure, Controlled Data Sharing

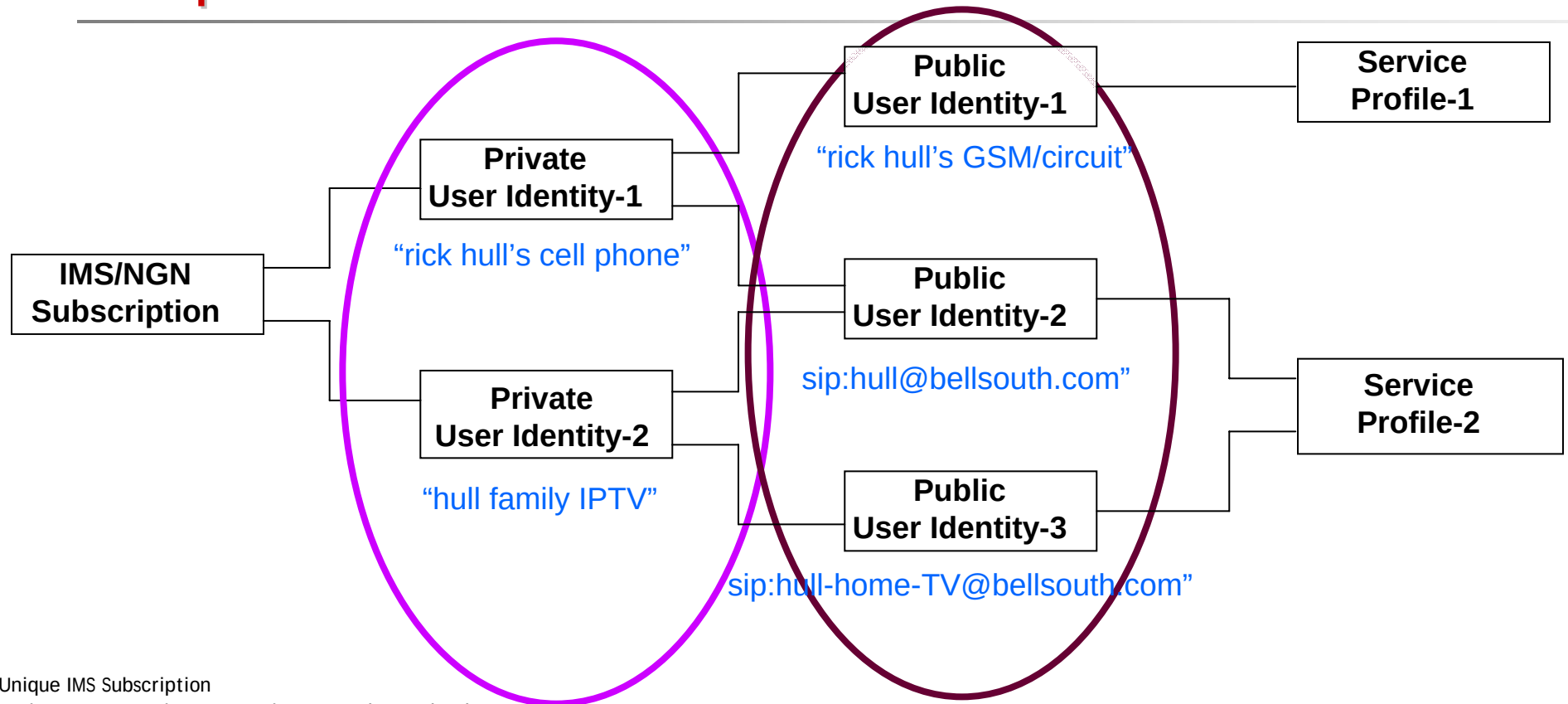
- "Enter Once, Share Everywhere"
- Requester-targeted
- Privacy-conscious



Multiple Users, Multiple Devices, Multiple Layers of Authentication



Multiple Identities



Unique IMS Subscription

Each IMS User can have more than one Private Identity

- E.g., a subscription can support multiple devices (sip phone, IPTV, ...) and SIM cards

Each IMS user can have more than one Public Identity per Private Identity

Each Public User Identity is assigned exactly one Service Profile

- But a Service Profile may be assigned to more than one Public User Identity

Example of multiple Private Identities:

- IMS handset with USIM card (using personal Public Identity IMPU-1 and one Office Public Identity IMPU-2)
- IMS WLAN card with soft USIM card (using WLAN Public Identity IMPU-3 and one Office Public Identity IMPU-2)

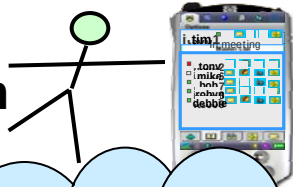


Intuitive Network Applications (INA)

Predictive click-to-xxx hot-buttons and presence displays

- One-button access to the people you're most likely to want to contact
- Changes as you move through your day

Sam



Sam is working at customer site, a little before lunch on Friday; so most likely to call

- Mary (Boss)
- Tom (IMS team leader)
- Sue (Customer liason)
- Sally (Wife)

Automatic learning of Sam's buddies, habits, preferences, e.g.,

- Sam doesn't share location or availability with Allen during work
- Sam is typically working if between 9-5 on weekdays, and whenever he is at a customer location

Allen



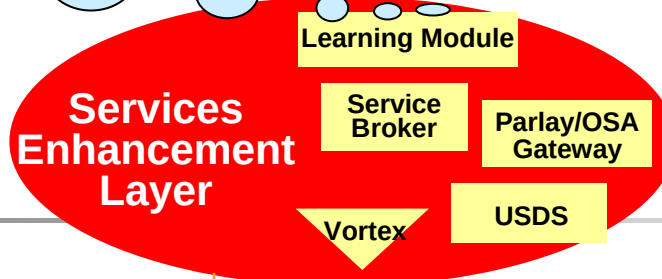
Sam doesn't want his location shared with friend Allen when working, except near end of day

Targeted advertising incorporates habits and preferences

- Sam often goes out for lunch on Fridays
- Sam registered with Lim Sung and La Strada restaurants for coupons
- These are near customer site where Sam is



Network sends IM coupons to Sam on behalf of Lim Sung and La Strada



Summary

Network Transformation to IP .. VoIP .. NGN

- Lower Capex (Reuse of network components)
- Lower operations cost, OPEX (Simplification)

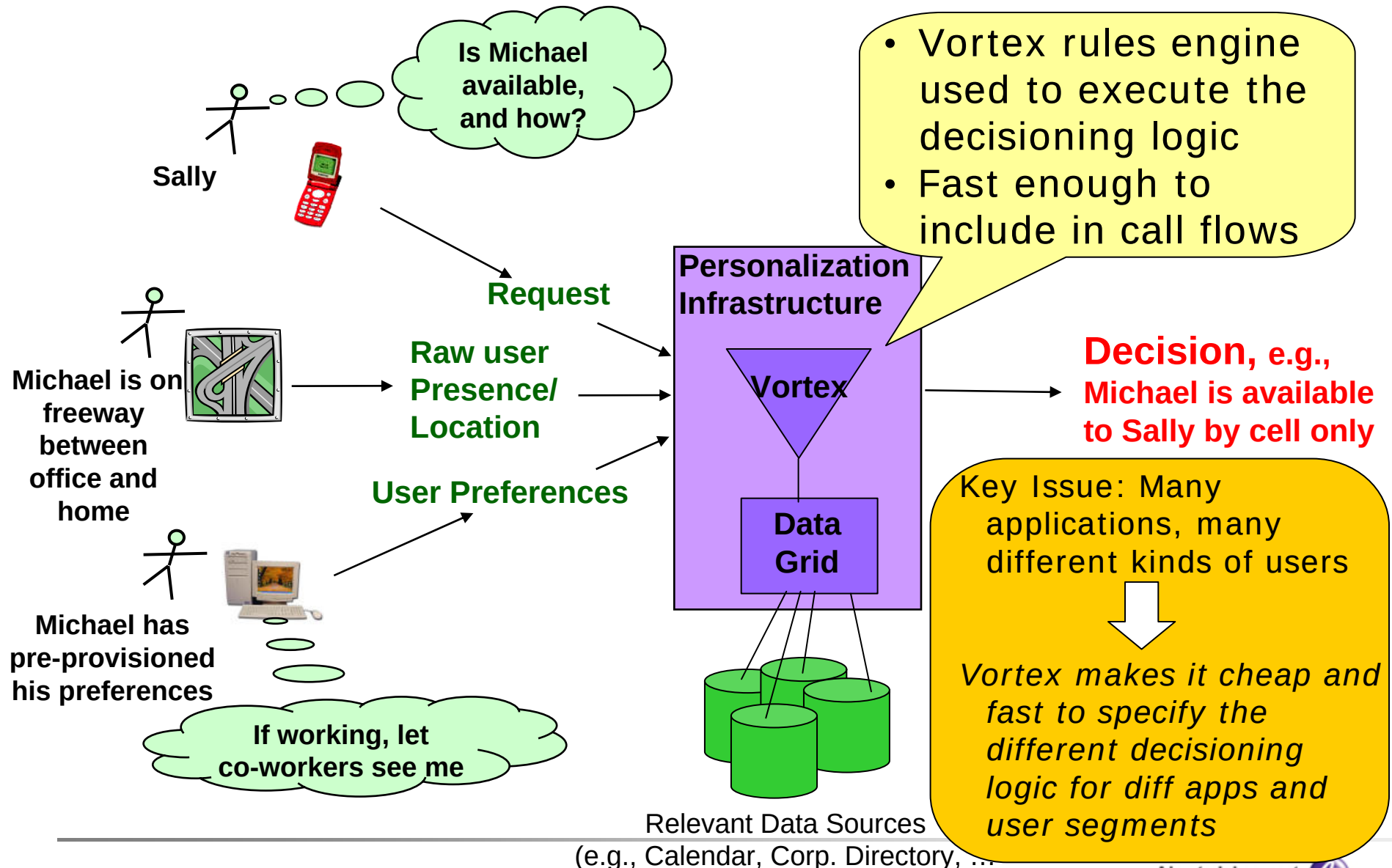
NGN is about new services and new communication models

- Session based communication
- Circuit and packet communication
- Sessions support transactions
- Combining voice, data and video services
- IMS is next step to Softswitch and to NGN
- NEW MULTIMEDIA APPLICATIONS

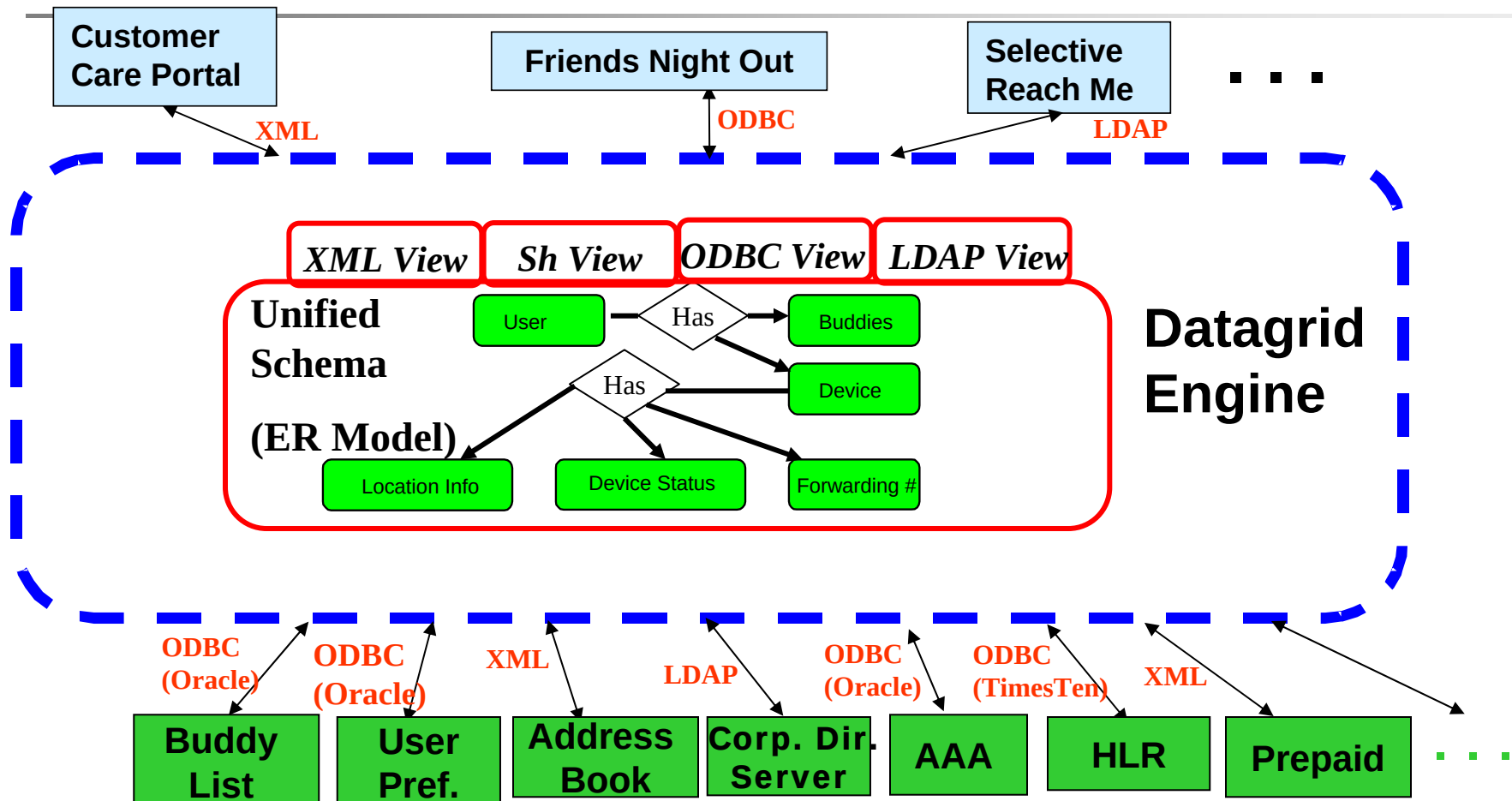
The background is a deep blue gradient. It features several bright, glowing light streaks that curve across the frame, suggesting motion or data flow. In the lower half, there are several concentric, glowing white circles that overlap each other, creating a sense of depth and focus.

www.alcatel-lucent.com

The key to rich, flexible personalization: Apply policies



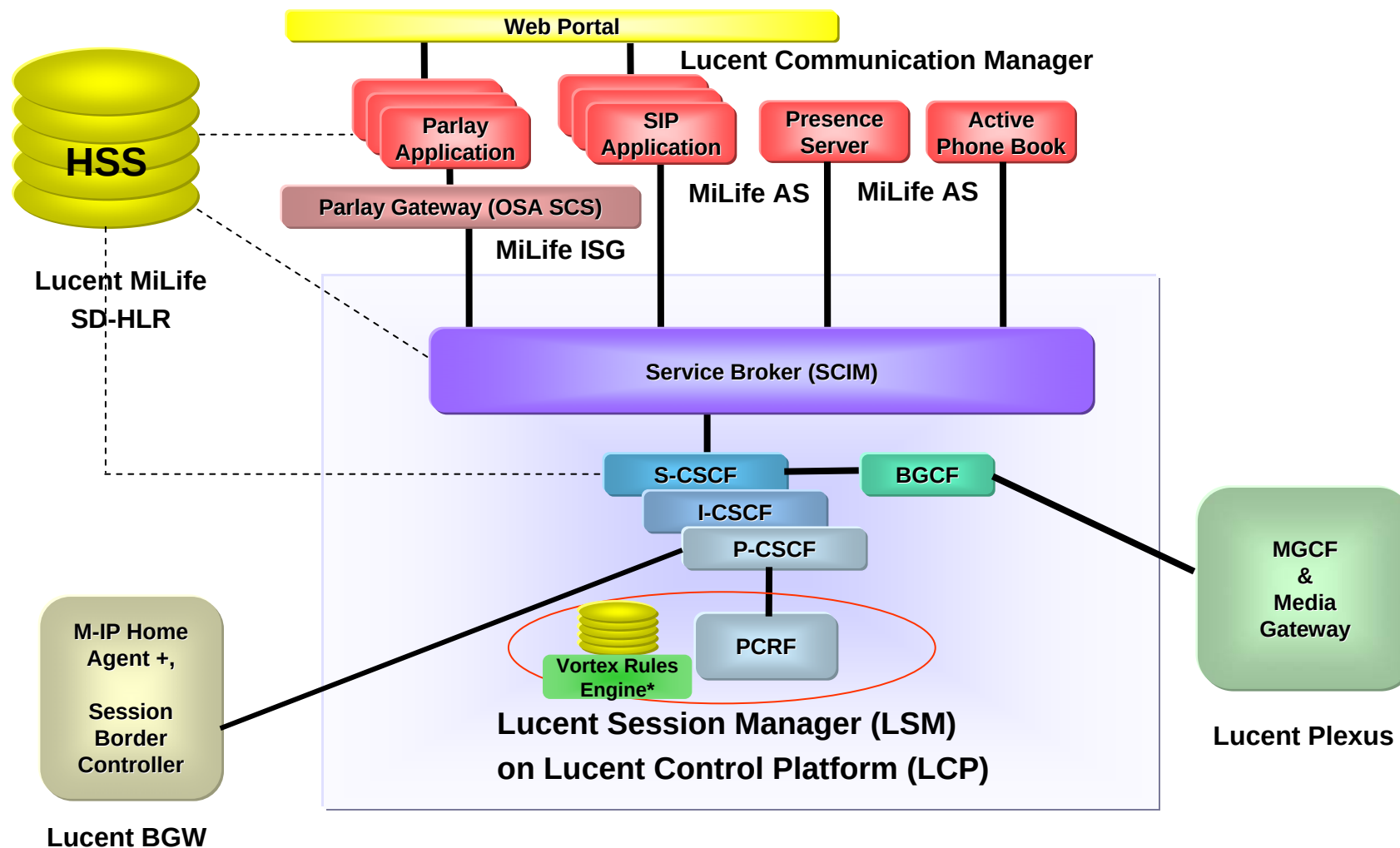
Datagrid™ Engine:



Unified schema based on Entity-Relationship (ER) model → easily converts to northbound LDAP, relational, XML views for queries

Data at Datagrid may be virtual, materialized, or “stream view”

Lucent IMS Architecture (including PCRF)

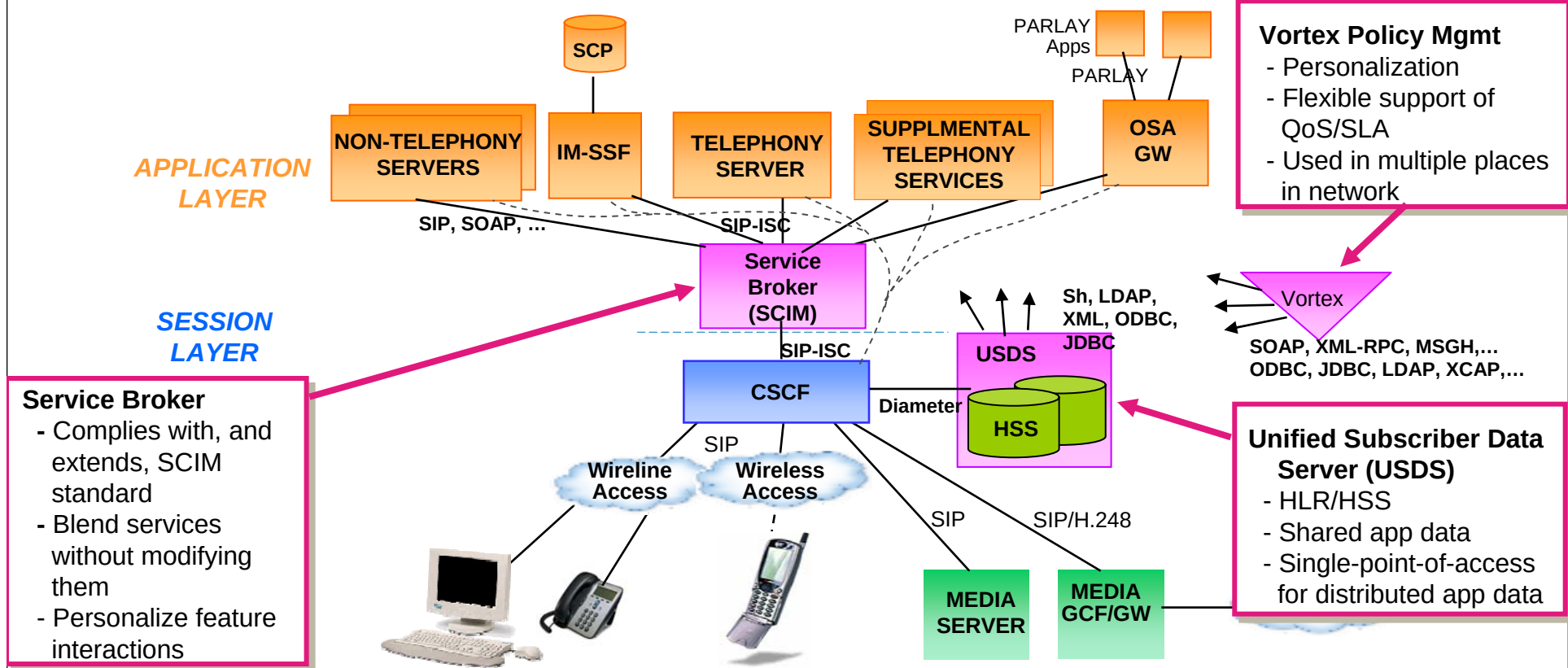


* Lucent Vortex Rules Engine under consideration for future PCRF solution

Push-to-view: Always -On Content



Beyond the Common Core: Enabling New Services



CSCF – Call Session Control Function
ISC – IMS Service Control
GPRS – General Packet Radio Control

OSA-GW
SG – Signaling Gateway

IM-SSF – IP Multimedia Service Switching Function
IMS – IP Multimedia Subsystem
HSS- Home Subscriber Server