ITU-T Kaleidoscope Conference
Innovations in NGN

Cross-fertilization of IMS and IPTV services over NGN

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Agenda

- Motivation
- IMS and IPTV
- IMS-based Converged Multimedia Services Framework
- FOKUS Media Interoperability Lab
- Evaluation
- Summary & Outlook

Motivation

- **Personalization**
  - **Personalized content delivery based on**
    - User preferences
    - User context (current location, access network, UE capabilities etc.)
    - User feedback and recommendations
    - Personalized targeted Advertisement (user or group based advertisements)
  - **Personalized look and feel e.g. GUI**
- **Interactive multimedia services**
  - **Interactive content**
    - Content based interaction schemes
    - Community support + services mash-up
  - **Direct user transaction**
    - Voting in Quiz-Show integration enabling direct user feedback via RC
  - **Shopping**
    - Charging through monthly bill or credit card credentials
- **Converged Telco and TV services**
  - **Integration of telecommunication services**
    - Audio and video telephony, presence, chat and messaging
  - **TV services**
    - Live TV and VoD
  - **Accessible through different end devices**

Limitations of today's IPTV solutions

■ Black box systems

- ➡ Closed for 3rd party service providers
- ➡ No cross-vendor interoperability
- ➡ User is bound to certain service contracts
- ➡ No NGN integration / Weak community & Web 2.0 integration / **no Telco integration**
- ➡ Weak dynamic service provisioning

■ Web TV

- ➡ Best effort (no chance for HD) → no QoS
- ➡ To many service offers in the web – no harmonized look and feel → different clients needed
- ➡ P2P is best effort too (scalability issues)
- ➡ No common user model (several accounts needed)

→ Need for

- ➡ Standardized service platform for IPTV (Open interfaces, generic hardware platforms)
- ➡ Seamless integration of different services available on various end devices and access networks

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IMS and IPTV

- ## Why use IMS for IPTV?
  - We need a framework for IPTV service control, User Profiles, charging, DRM, QoS, etc.
  - Enabling **interactivity** and **personalization**
  - Until now there are no standards for IPTV
  - IMS (e.g. TISPAN Release 2) is still under development
  - Agonistic access to TV services through different bearers (e.g. xDSL, CATV, UMTS, WLAN or DVB-X)
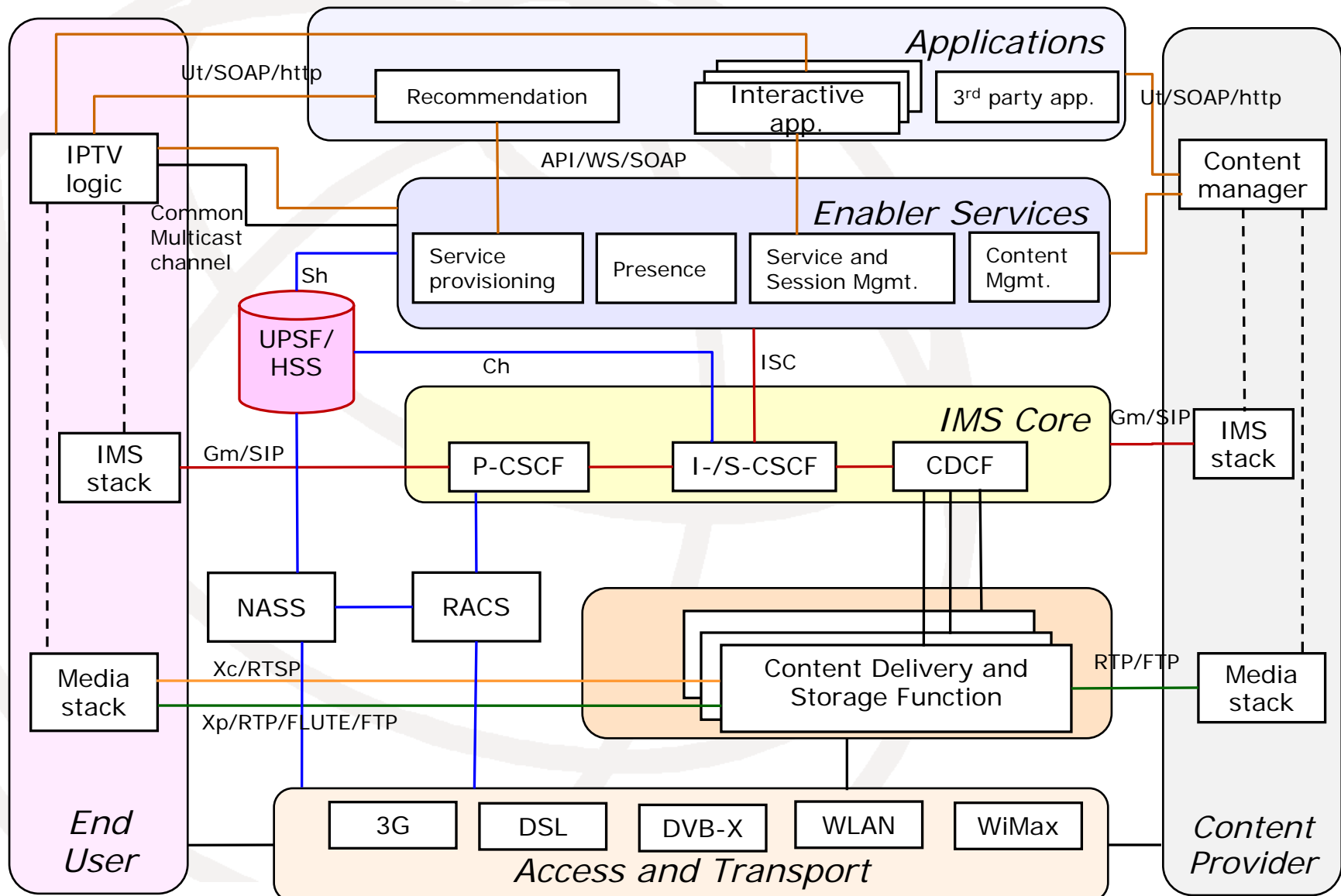 - Convergence of IMS services and TV services / Telco integration

IMS and IPTV (cont.)

- **IMS enables**
  - Overlay control of fixed, mobile and broadcast networks
    - 3G, 802.X, DSL, DVB, etc.
    - Seamless session mobility across several bearers or IP-based access technologies
    - Quality of service support
  - Profiles and states management of IMS subscribers
    - Personalization and personal mobility support
  - Managing user interactivity and feedback
  - Session management and service provisioning
  - User authentication, authorization and accounting (AAA)

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IMS-based Converged Multimedia Services Framework

Applications

Recommendation

Interactive app.

3rd party app.

Ut/SOAP/http

Ut/SOAP/http

API/WS/SOAP

IPTV logic

Content manager

Common Multicast channel

Enabler Services

Service provisioning

Presence

Service and Session Mgmt.

Content Mgmt.

Sh

UPSF/ HSS

Ch

ISC

IMS stack

IMS Core

Gm/SIP

P-CSCF

I-/S-CSCF

CDCF

Gm/SIP

IMS stack

NASS

RACS

Content Delivery and Storage Function

RTP/FTP

Media stack

Xc/RTSP

Media stack

Xp/RTP/FLUTE/FTP

End User

3G

DSL

DVB-X

WLAN

WiMax

Access and Transport

Content Provider

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FOKUS Media Interoperability Lab

IMS-based IPTV

- Linear TV
- EPG
- Video on Demand (VoD)
- VoD Rating
- VoD Recommender
- User created content (YouTube)
- Bookmarking & Search
- Targeted interactive advertisement

IPTV-NGN interaction

- Rich Presence
- NGN Telephony (VoIP)
- Instant Messaging
- See what I see
- Video Follow Me
- Targeted notifications
- Remote parental control
- Voting & Shopping

Interactive advertisement

Messaging

Calling

EPG / BCG

Rich Presence

Voting
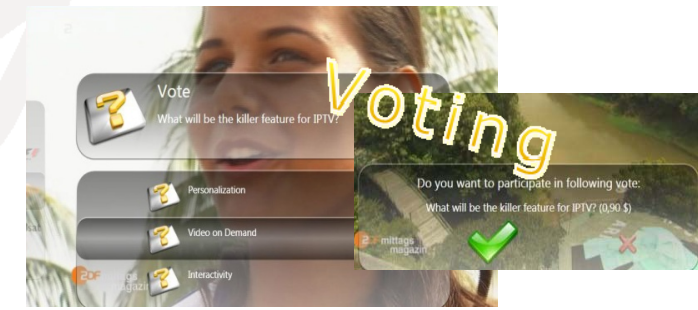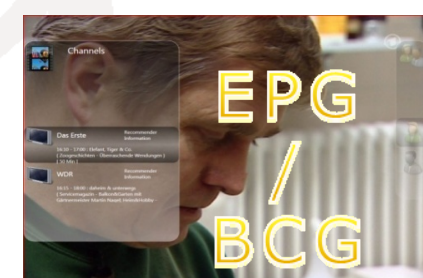
NGN Live TV

- Live TV
- provide short EPG (electronic program guide) information
- multicast technologies for video playout

NGN Video on Demand

- Video on Demand content (movies)
- trick functions (play, pause, stop)
- user rating (1 to 5 stars)

VOD Session Continuity

Alice mobile TV	Alice fixed TV	P-I-S-CSCF	SIPSEE(SME)	MDF

1. IP Connectivity and IMS Registration

2. Service and content provisioning

3. SIP Invite: VoD movie X

4a. SIP Invite: Content X

4b. 200 Ok: SDP RTSP

5. 200 ok: MP SDP RTSP to X

6. RTSP: Setup

7. RTSP: Play

8. RTP

9. RTSP: teardown

10. SIP Info time stamp

11a. SIP Bye

12b. SIP Bye

12c. 200 Ok

12d. 200 Ok

13. IP Connectivity and IMS Registration

14. Service provisioning, VoD: X, time stamp

15. SIP Invite: VoD movie X

16a. SIP Invite: Content X

16b. 200 Ok: SDP RTSP

17. 200 ok: MP SDP RTSP to X

18. RTSP: Setup

19. RTSP: Play, t=time stamp

20. RTP

21. RTSP: teardown

22. SIP Info time stamp:t

23a. SIP Bye

23b. SIP Bye

23c. 200 Ok

23d. 200 Ok
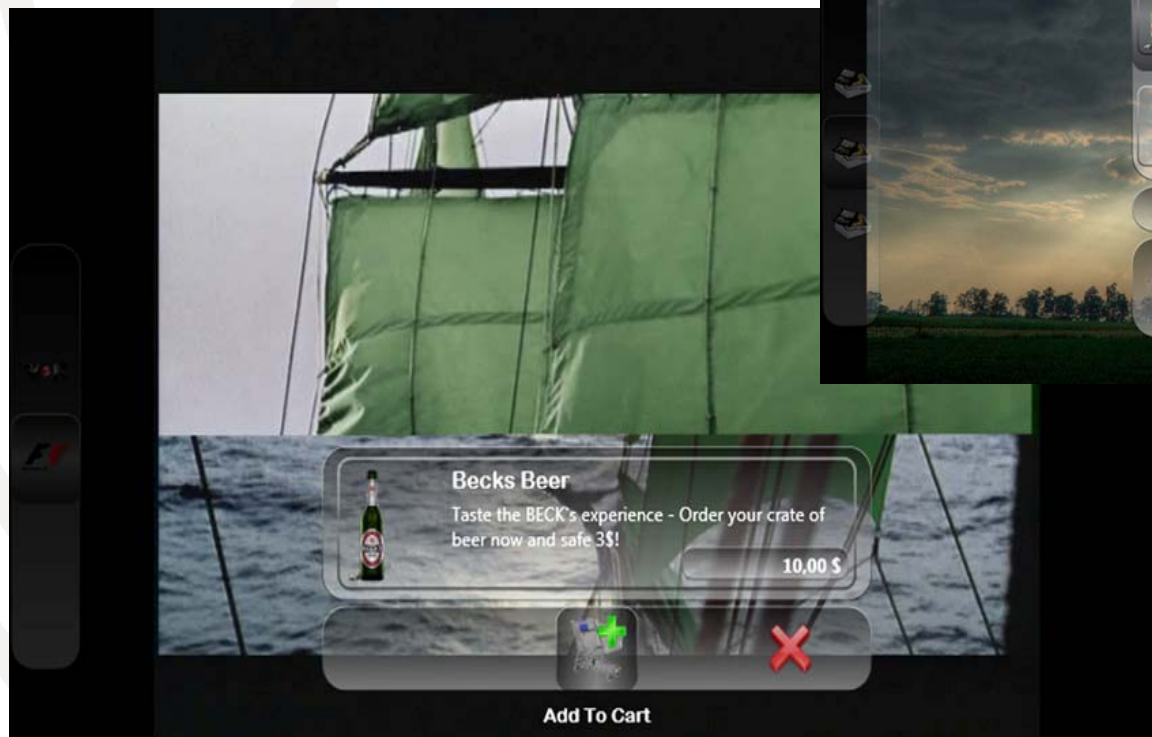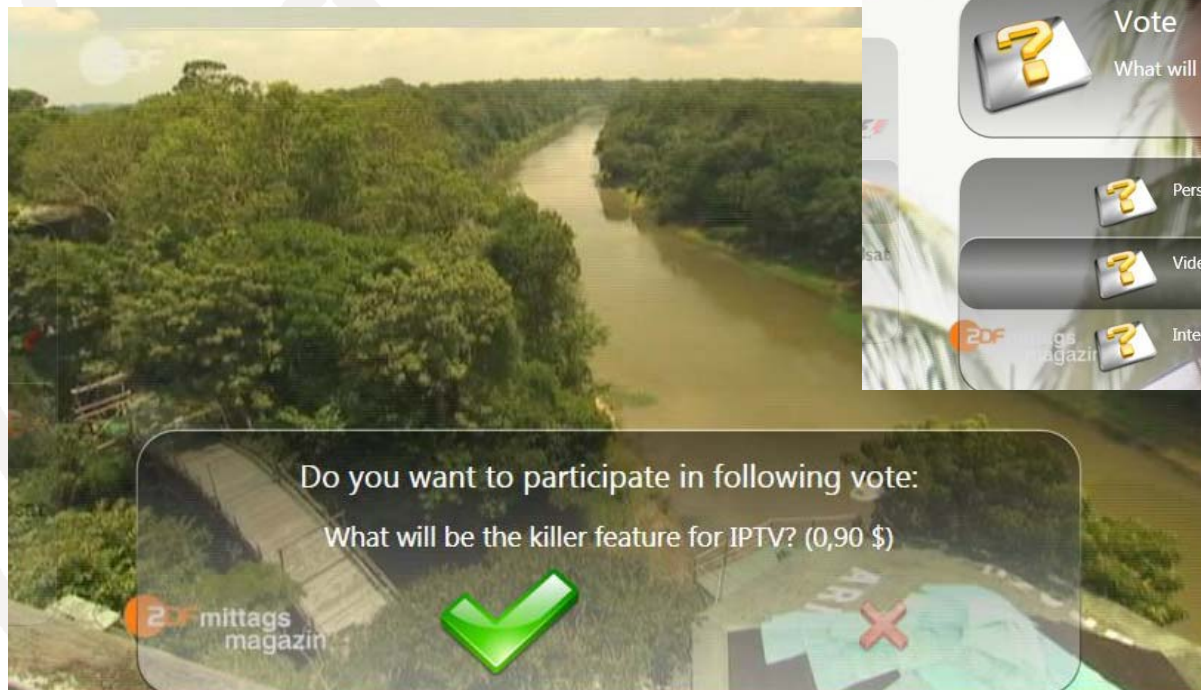
interactive Advertisement & Shopping

- Personalized, targeted and interactive advertisement
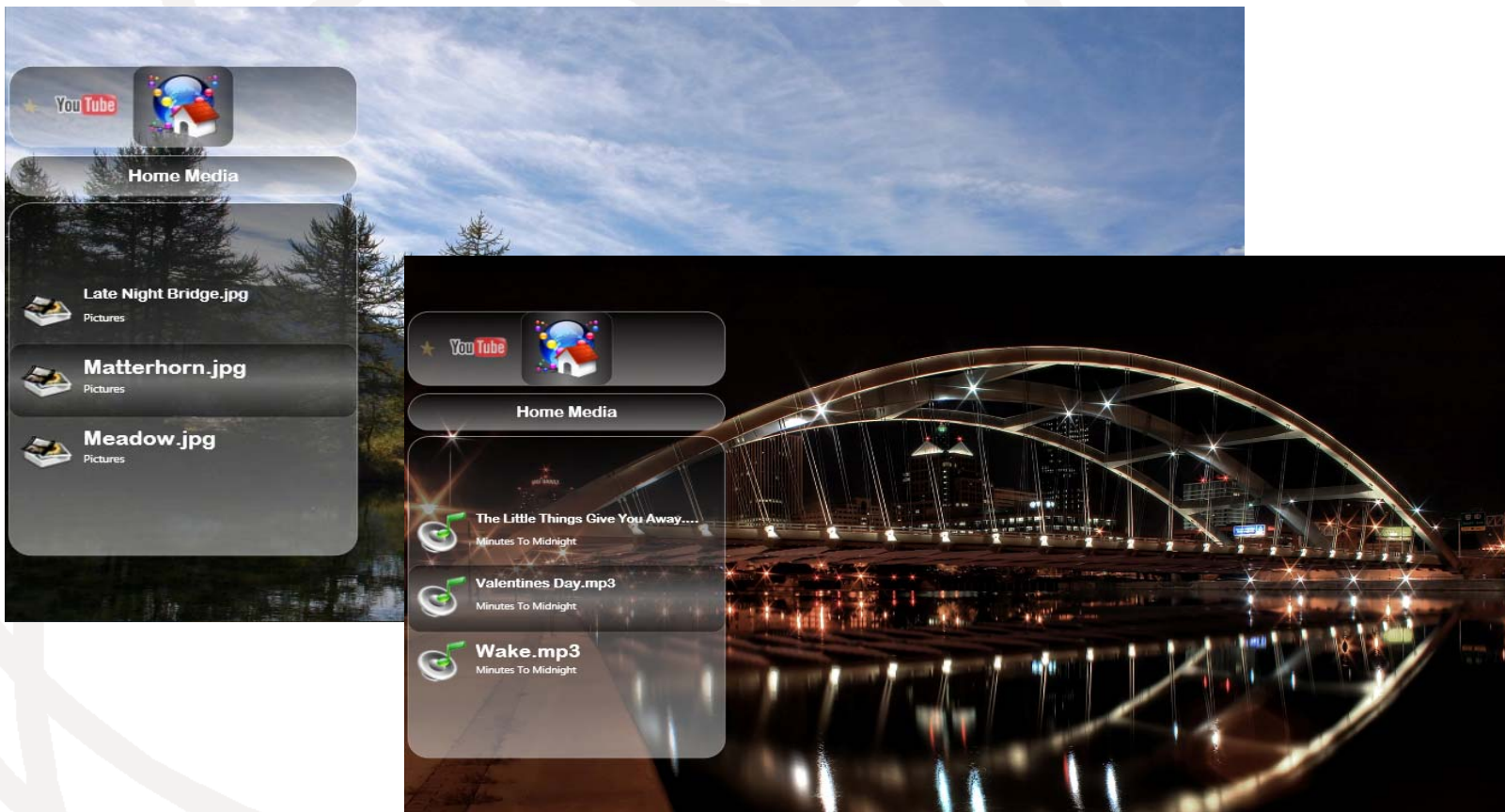- Build in shopping service

Interactive Voting

- Channel and user specific Voting service enabled by the Service Interactivity Functions using the IMS
- Integrated billing and accounting

Home Media - UPNP & DLNA support

- Scans Media Devices within the home domain
- Provides access to pictures, video, music, metadata
- Home content sharing

Converged IPTV service - VoIP

- VoIP enabled IPTV client offers telephone service
- Interaction between TV and communication services
  - on incoming call displaying caller id
  - if call is connected:
    - VoD: pause video
    - LiveTV: mute audio during the call
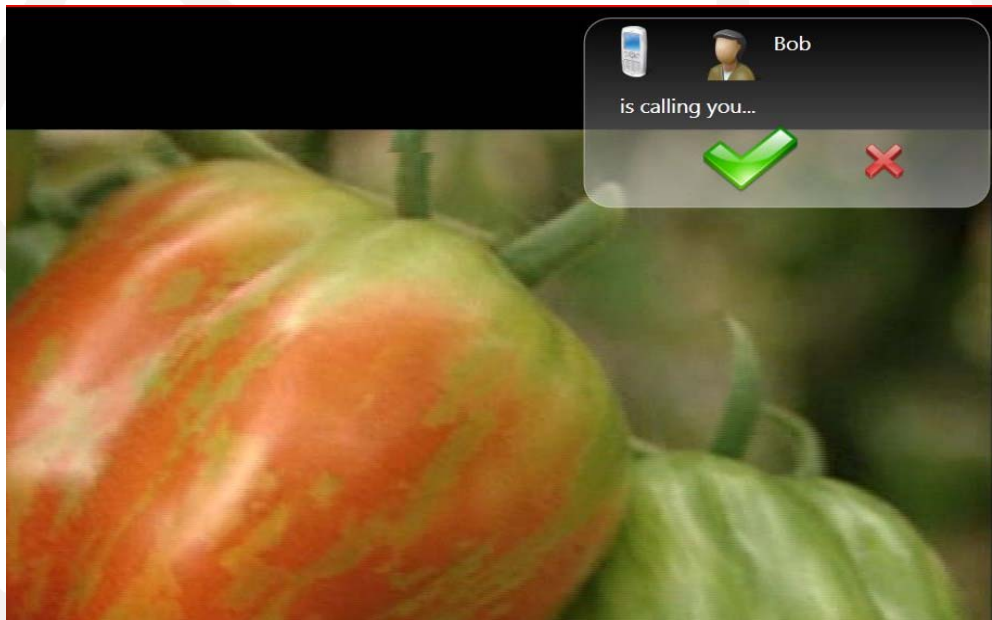
Converged IPTV service – Instant Messaging

- Messaging service using the Session Initiation Protocol (SIP)
- Real-time, content related conservation (community aspect)
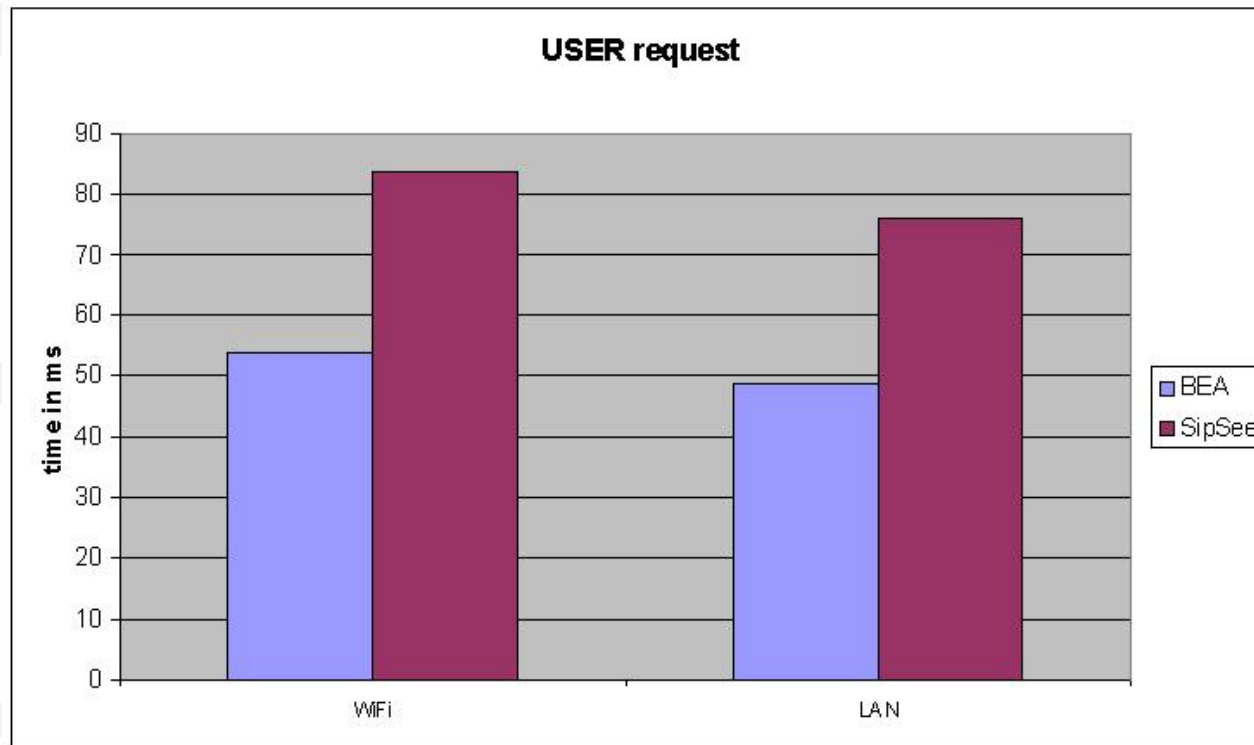
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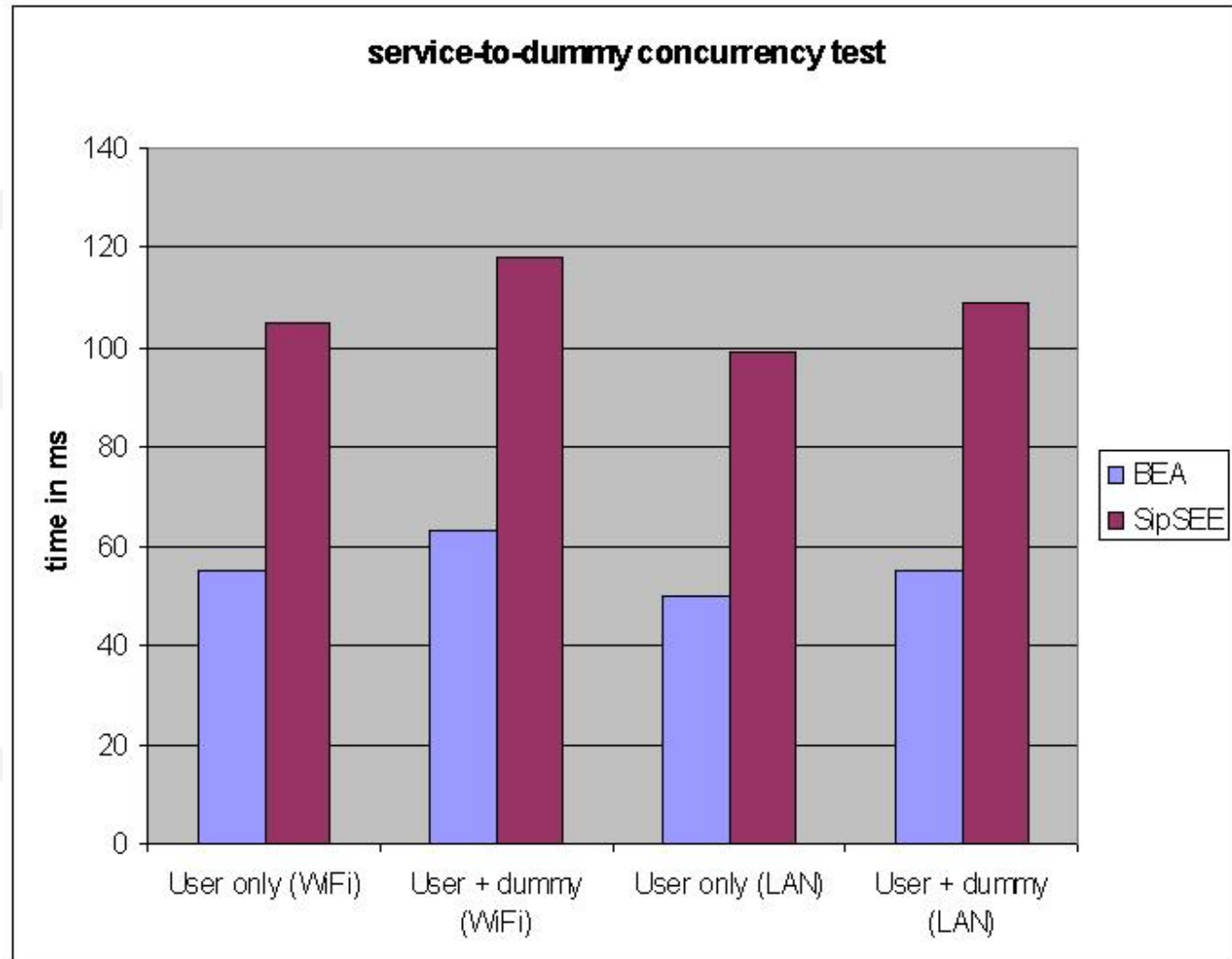- Evaluation
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Total end-to-end signalling delay

- Implementation of SIP AS on SipSEE 2.0 and BEA WebLogic Sip Server 3.1
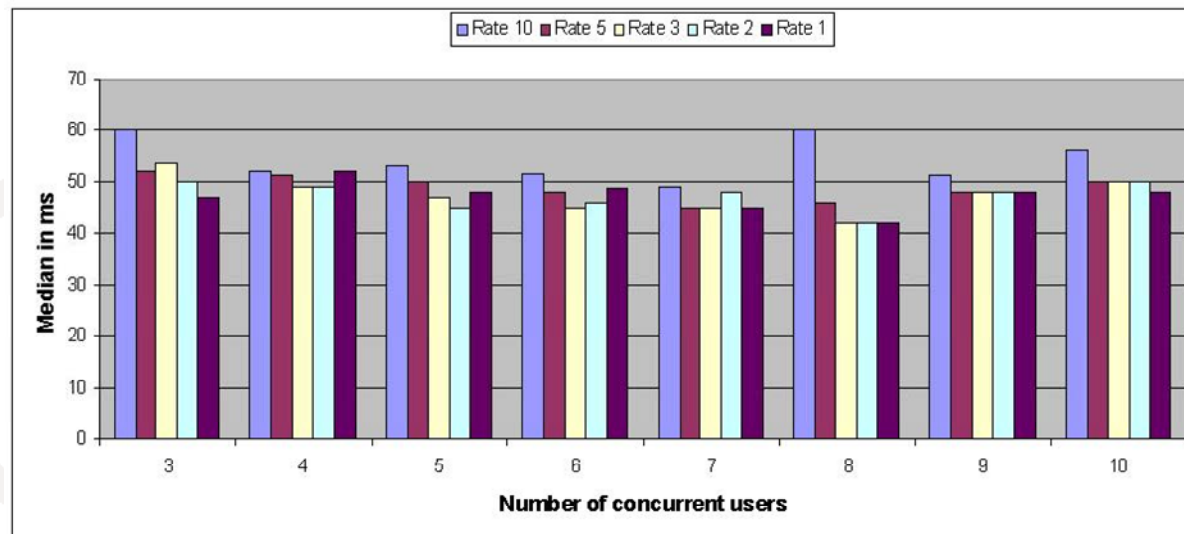- SipServlet
- Two different access networks (WiFi, LAN)

Service-to-dummy concurrency test

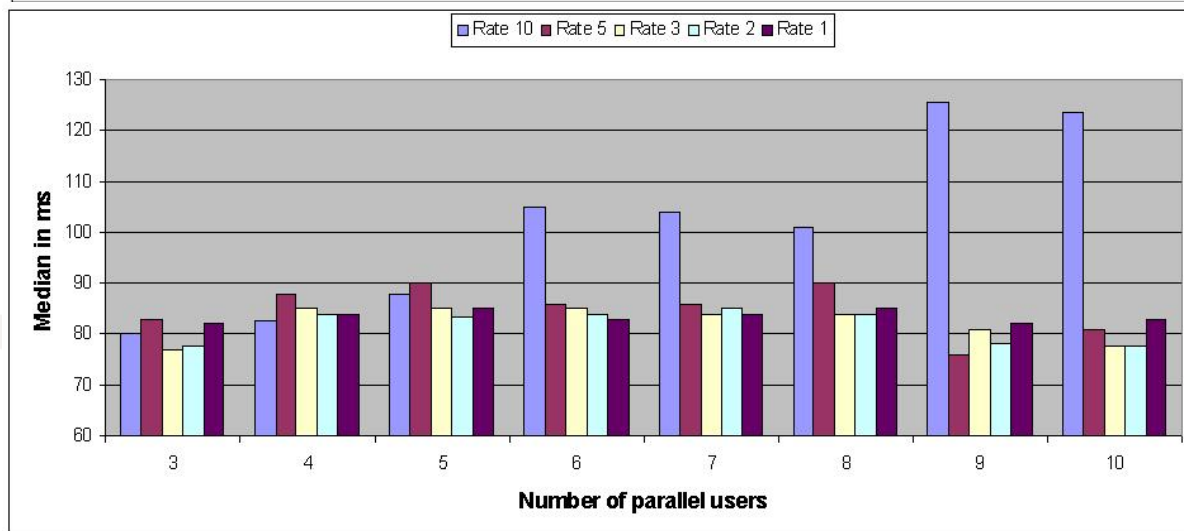- Ability to switch between different services

Parallel user request

- BEA SipServer

- SipSEE 2.0

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Summary & Outlook

- IMS as middleware for cross fertilized IPTV scenarios

- Easy integration of NGN features into IPTV world

- IMS as service docking station for personalization and interactivity features

- FOKUS Media Interoperability Lab as reference implementation

If you want more …
➔ Mark your Calendars!

4th International FOKUS IMS Workshop 2008
"Challenges and Opportunities in a
Converged Services World -
an Update on IMS, IPTV, SDPs, SOA and Web X.0"
Berlin, Germany, November 6-7, 2008
www.fokus.fraunhofer.de/go/ims-event/

Featuring:

- *IMS Starters Tutorial, Open Source Starters* ~~al~~
- *Many Operator Talks*
- *Several interactive Workshops*
- *Vendor Exposition*
- *IMS Playground Visits and IMS Service Demonstrations*
- *FOKUS SOA Telco and Media Interoperability Lab Tours*

More than 290 people from
29 nations attended last years event