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# Mobility, Usability & Value

Creating and delivering high value mobile services

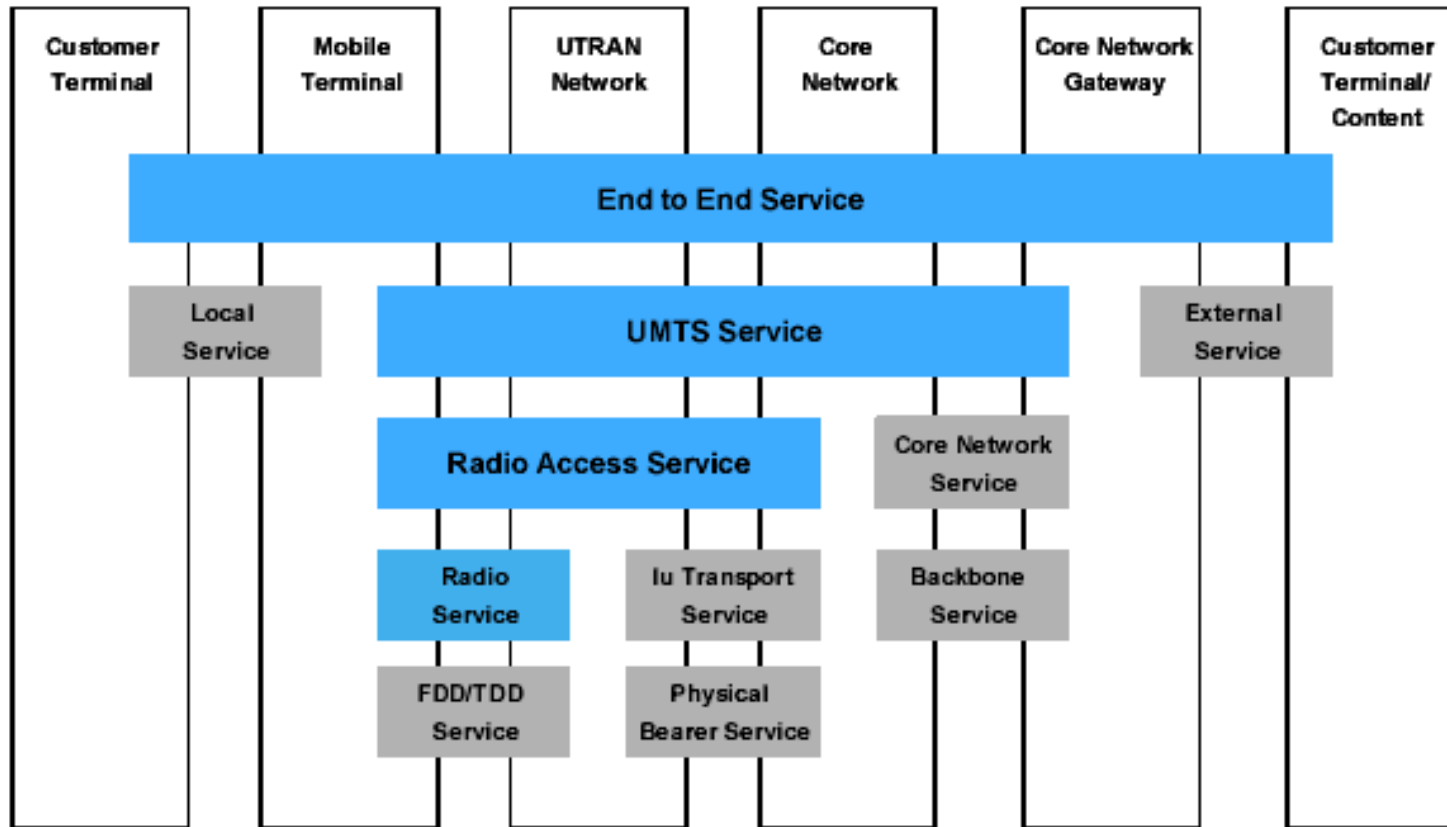
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Michael A. Krasner

The Open Group Conference, Paris

# UMTS QoS Architecture

As defined by 3<sup>rd</sup> Generation Partnership Project (3GPP)



UMTS – Universal Mobile Telecommunications System

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# Agenda

- The opportunity
- A vision
- Market research
- The customer experience, usability & value
- Accelerating development with standards

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# The Road Warrior

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“We just got out of a meeting. He has fifteen people to call. He’s looking for one number. He’s calling another. And it finally just got to be too much.”



# MegaTrends Driving Opportunity

- End-user mobility
  - Across all markets, demographics, worldwide
  - Business methods changing accordingly
  - Exploding appetite for information – consumer & business – from anywhere
- Convergence
  - The Internet & telephony, voice & data
  - Information, commerce, entertainment
- Technology advancements
  - Speech recognition and TTS performance
  - Computing cost and performance
  - 2G ⇒ 2.5G ⇒ 3G
  - Standards, including VoiceXML and SALT



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# A Challenging Time of Great Opportunity

- The business environment for wireless network operators is changing
  - Capital budgets are tighter
  - Bond with subscribers is weakening
  - Need to re-launch mobile data services
  - Need to increase ARPU



- Operators require 2.5G and 3G killer apps
- And interoperable solutions based on an open, modular, IP platform

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# A Mobile Vision

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COMVERSE

inspire · create · express

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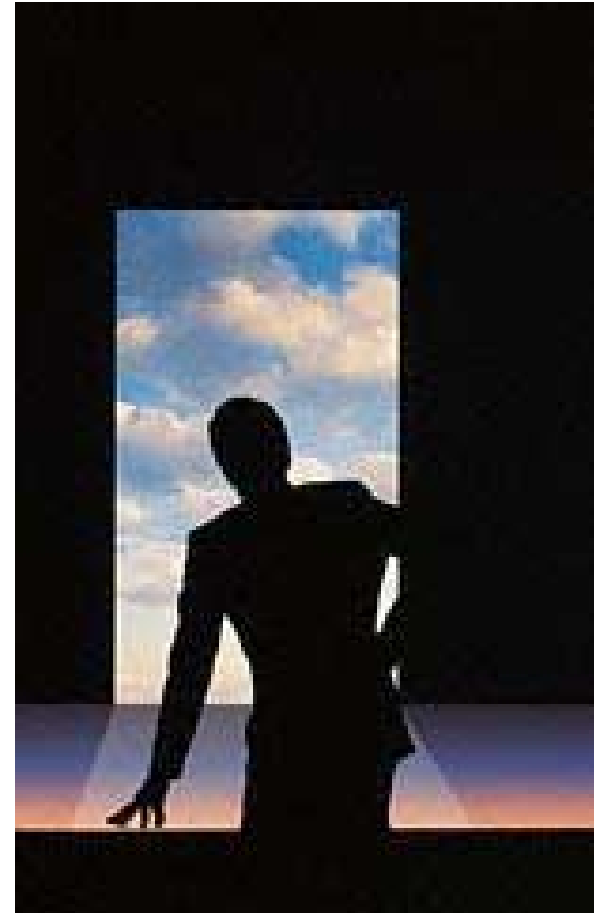
# My Mobile Voice Portal Vision



- It will provide the ultimate personal connectivity—anywhere and everywhere, mobile and fixed, personal and business, work and play.
- It will deliver personalized, high value multi-media content, communication and transactional services.
- It will employ a natural voice user interface as the primary method for control and navigation, and multiple modalities (voice, text, graphics, video) for presentation and interaction.

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**...and it will create opportunities  
we have not yet imagined.**



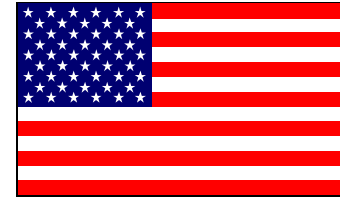
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# Market Research

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What do the end-users really want?

# Worldwide Demand for Voice Portal

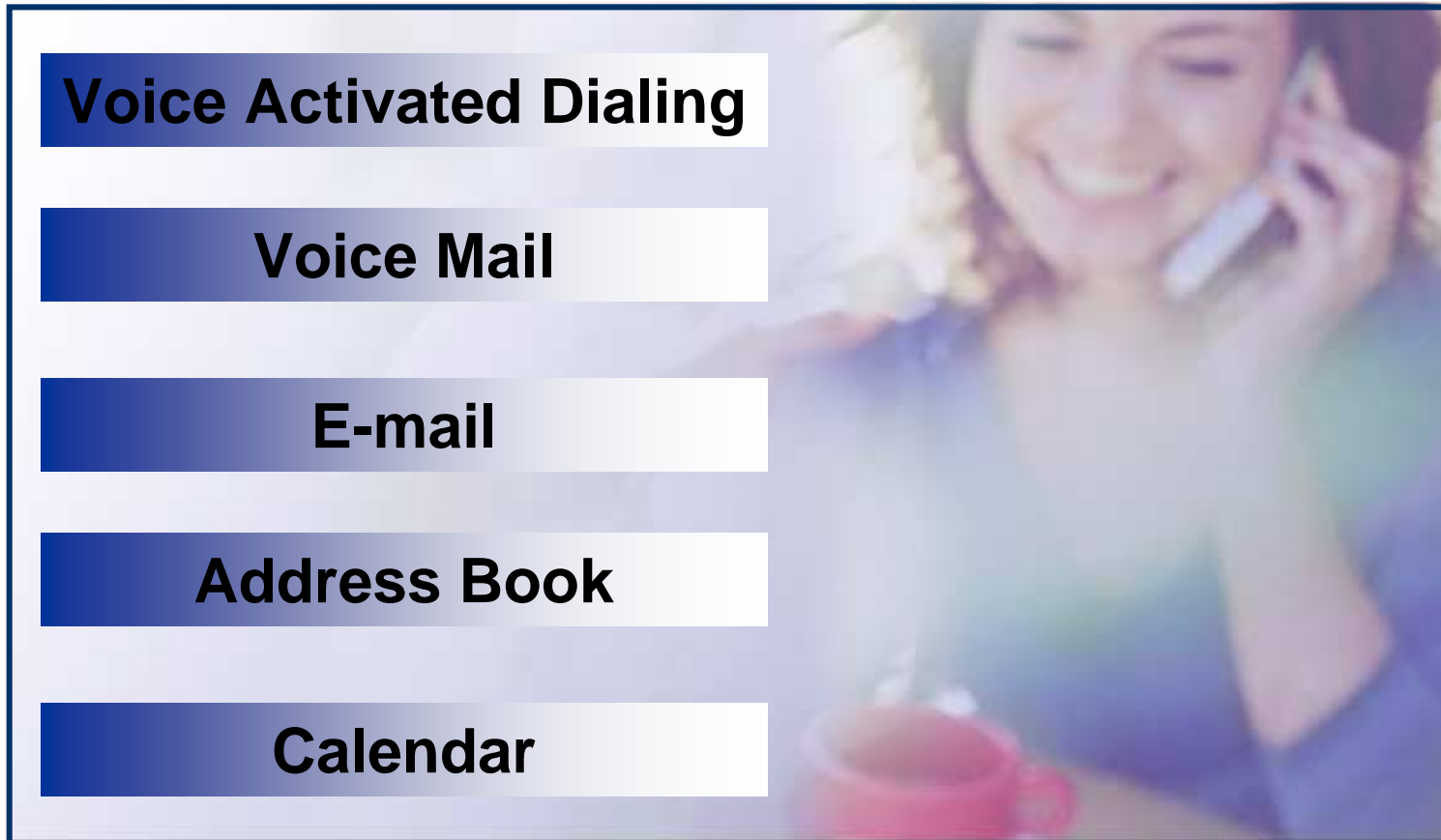


| End-User Research          | United States | Europe |
|----------------------------|---------------|--------|
| Service is appealing       | 90 %          | 82 %   |
| Willing to pay monthly fee | 65 %          | 64 %   |
| Want service within 6 mo.  | 57%           | 52 %   |
| Would churn for service    | 35 %          | 36 %   |

Source: Comverse

# Worldwide Similarities

## United States and Europe Top Five “Most Wanted Services”



Source: Comverse

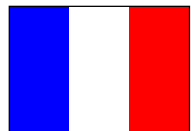
# Cultural Differences



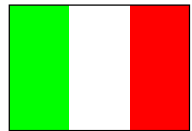
- United Kingdom
  - Weather
  - Address Book



- Germany
  - Travel directions, VAD, email, VM and reminders



- France
  - Restaurant information
  - Voice mail, appointment scheduling, email, travel directions, traffic info



- Italy
  - Shopping
  - Travel directions, address book, VAD



- Spain
  - Soap opera news
  - VAD, travel directions, buying travel tickets



- Sweden
  - Email and reminders

Source: Comverse

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# And Japan?

- Japan research indicates a strong demand for a complete multi-modal mobile voice portal solution including:
  - Unified messaging
  - PIM
  - Content



Source: Comverse



# Regulatory Landscape

- ❑ Regulatory “ban on cell phones” while driving
  - Australia, Austria, Brazil, Chile, Czech Republic, Denmark, Greece, Ireland, Israel, Italy, Jordan, Japan, Netherlands, Portugal, Romania, Russia, Singapore, Slovenia, South Korea, Spain, Switzerland, Taiwan, Thailand, Turkey, UK, Zimbabwe
  - United States
    - ❑ Only New York State
    - ❑ 39 additional states pending



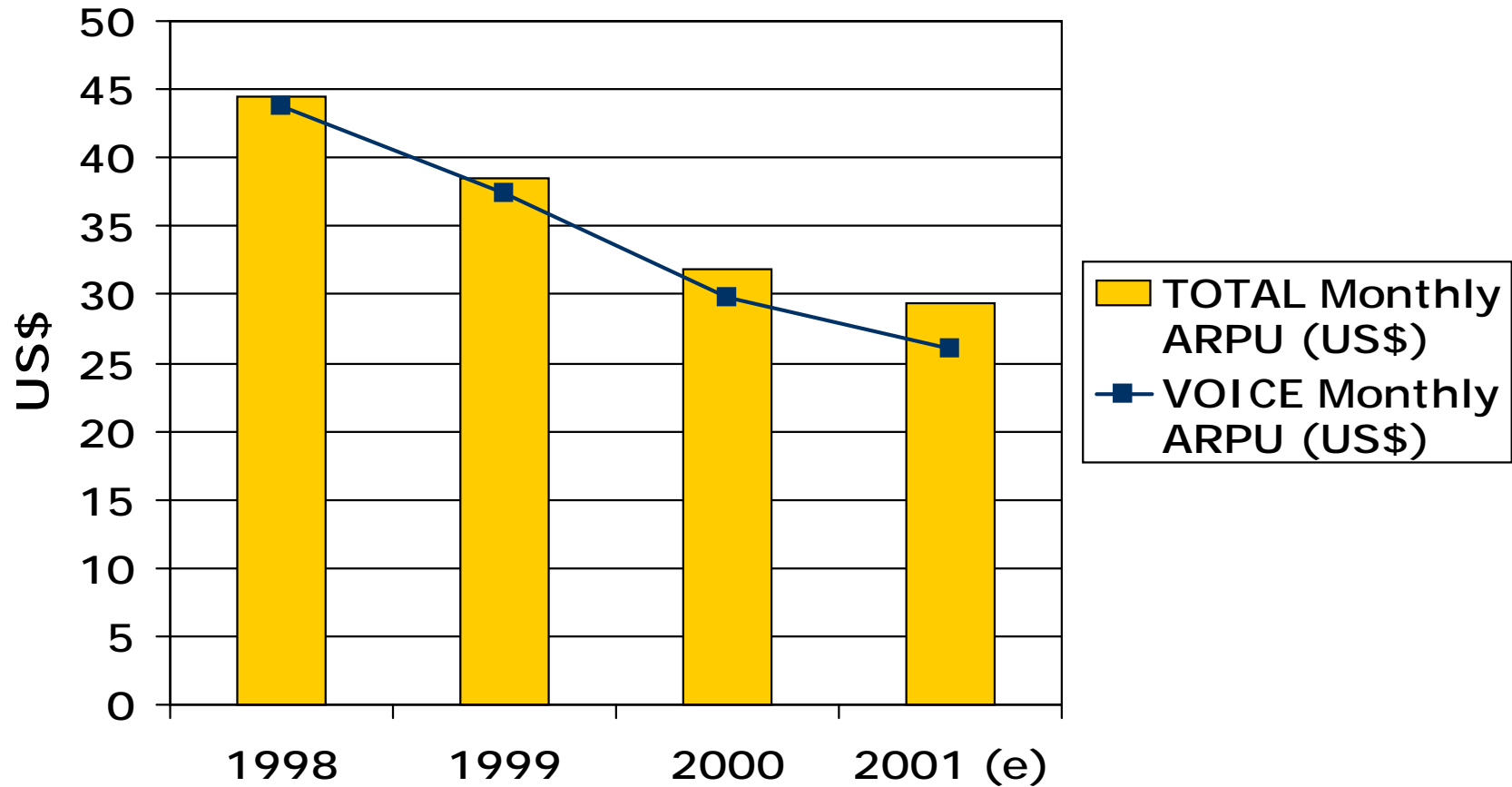
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# Business Case

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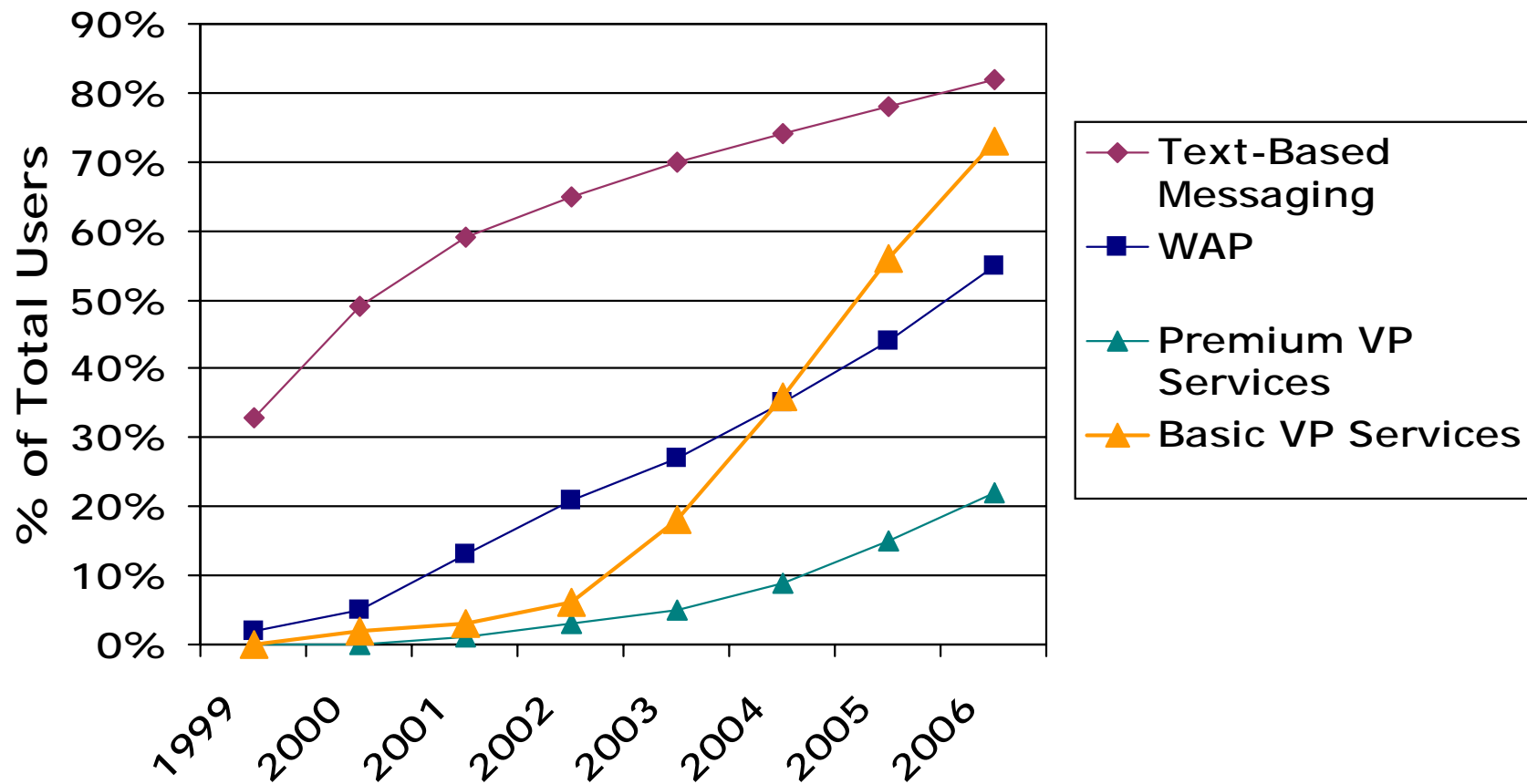
The network operators' point of view

# European Mobile ARPU Decline



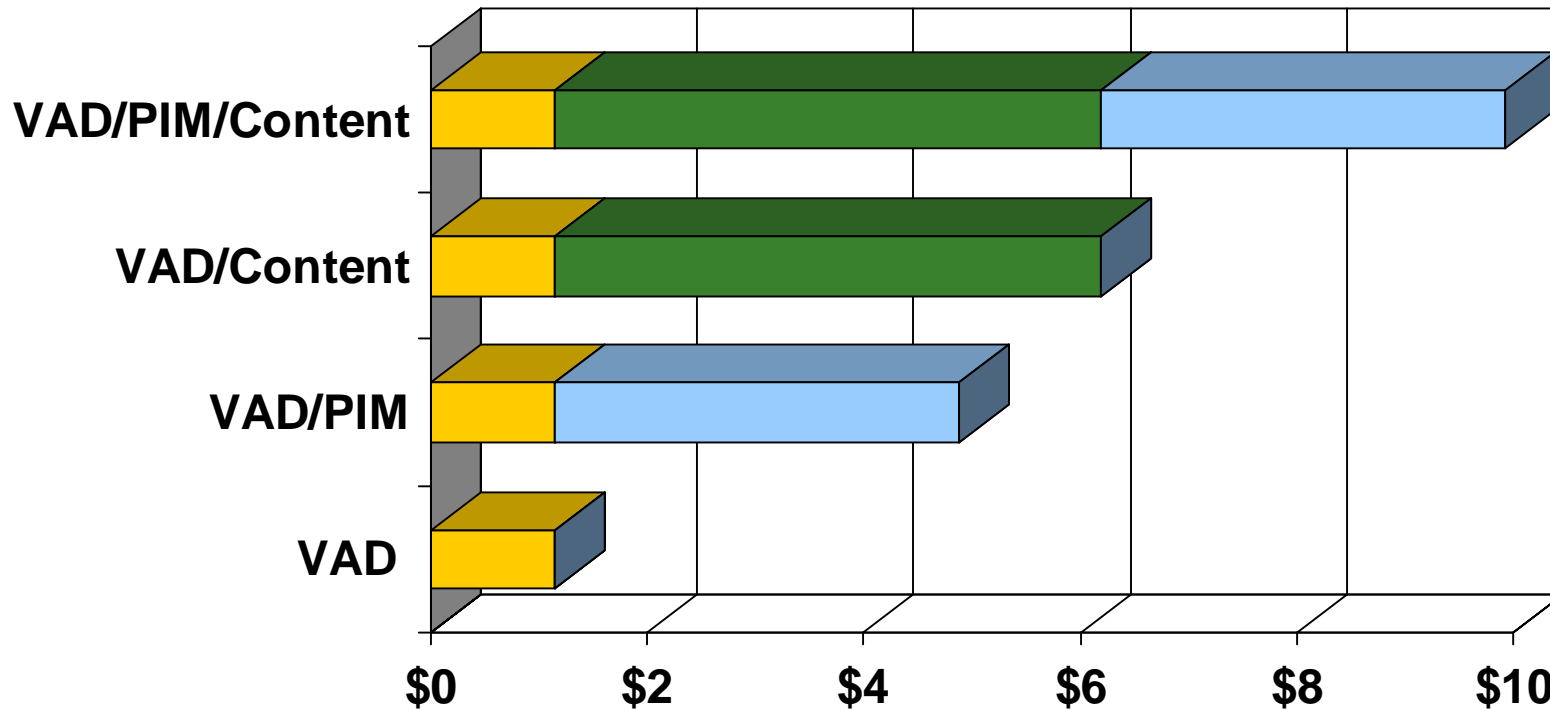
Source: Yankee Group

# European Market Adoption of Voice Portal, WAP & Text-Based Messaging



Source: Yankee Group

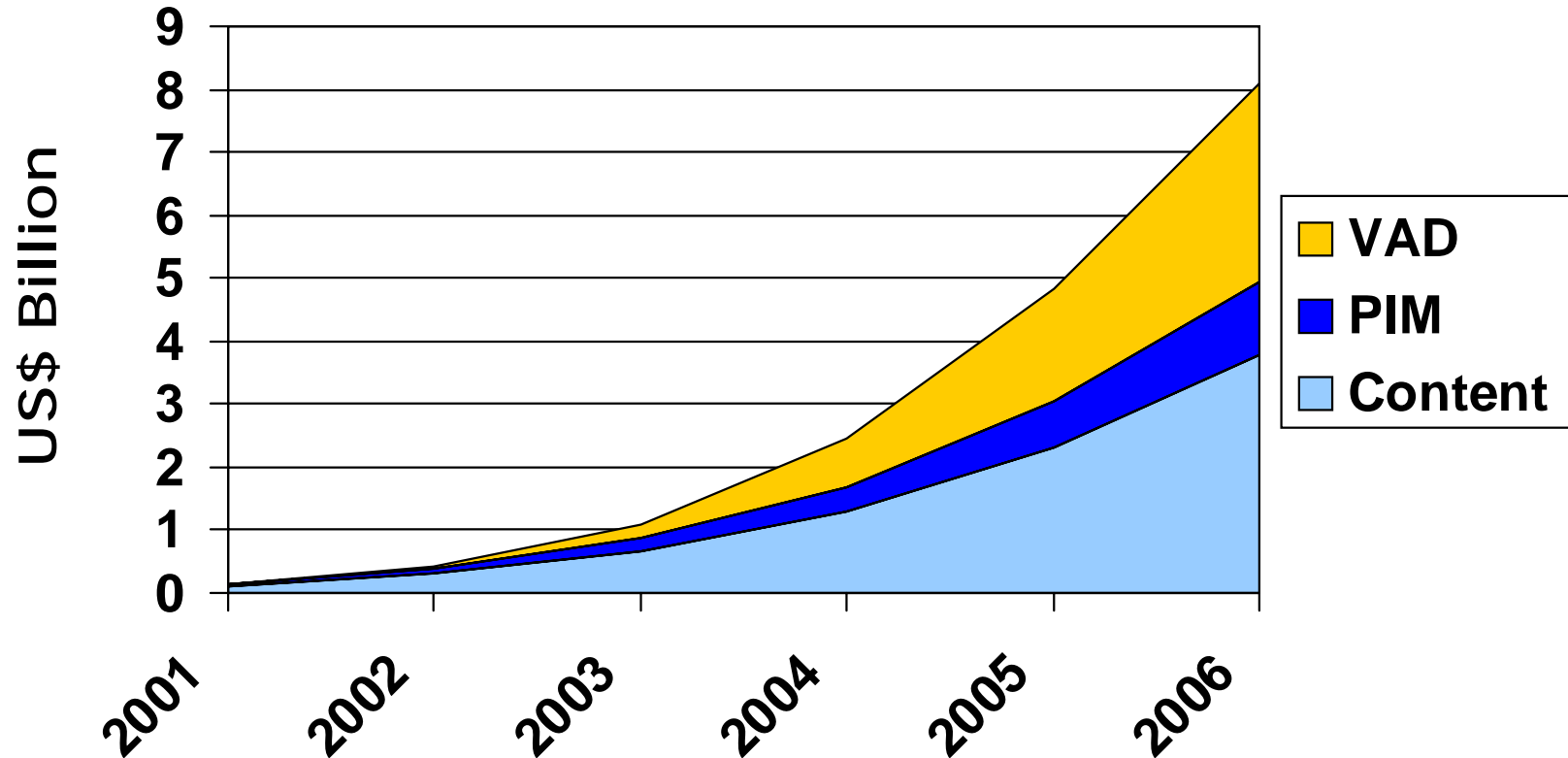
# European Voice Portal Market Projection



ARPU Projection for 2006

Source: Yankee Group

# European Voice Portal Market Projection



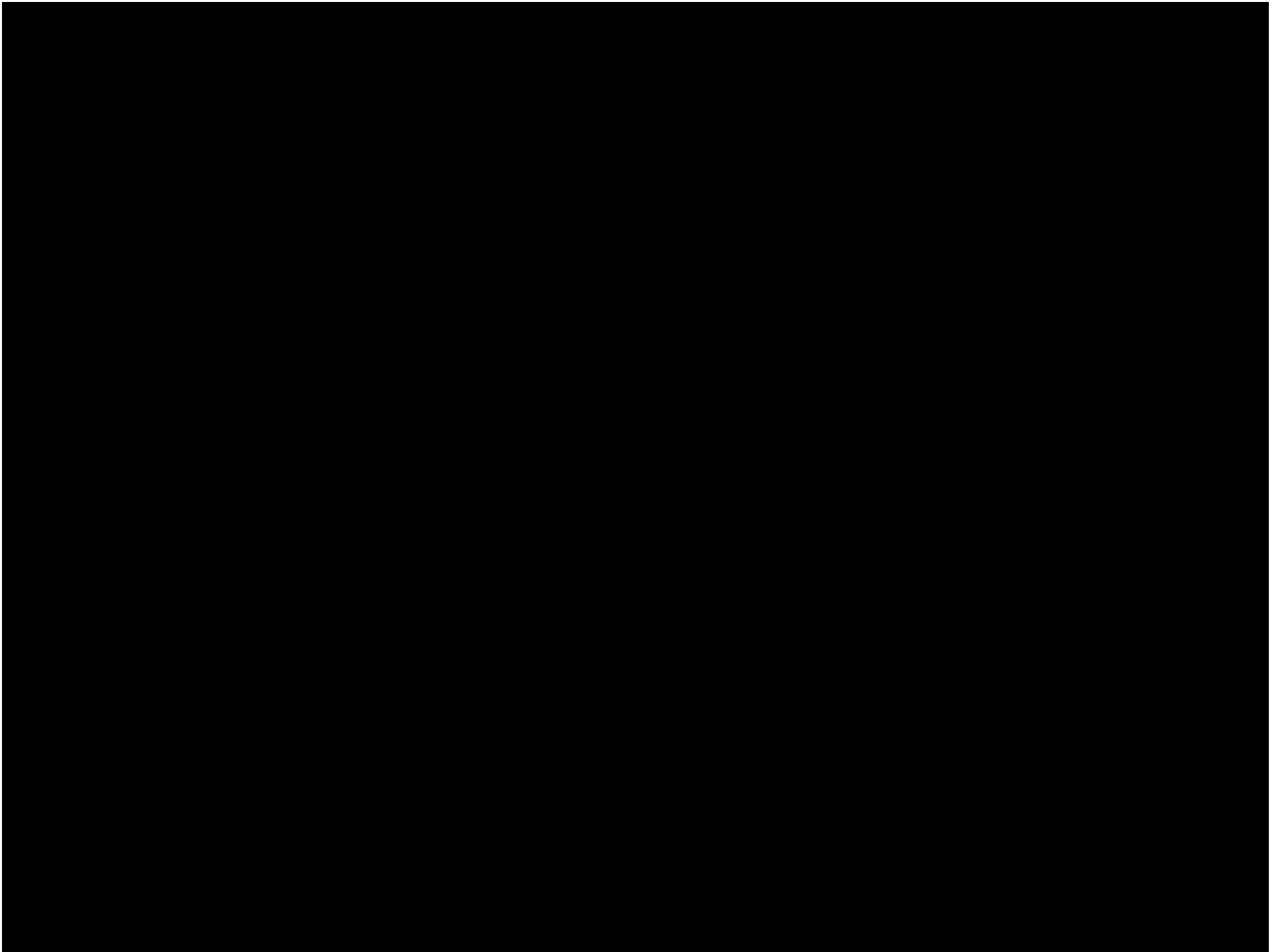
Annual Services Revenues

Source: Yankee Group

# mcn tele.com's Veronica

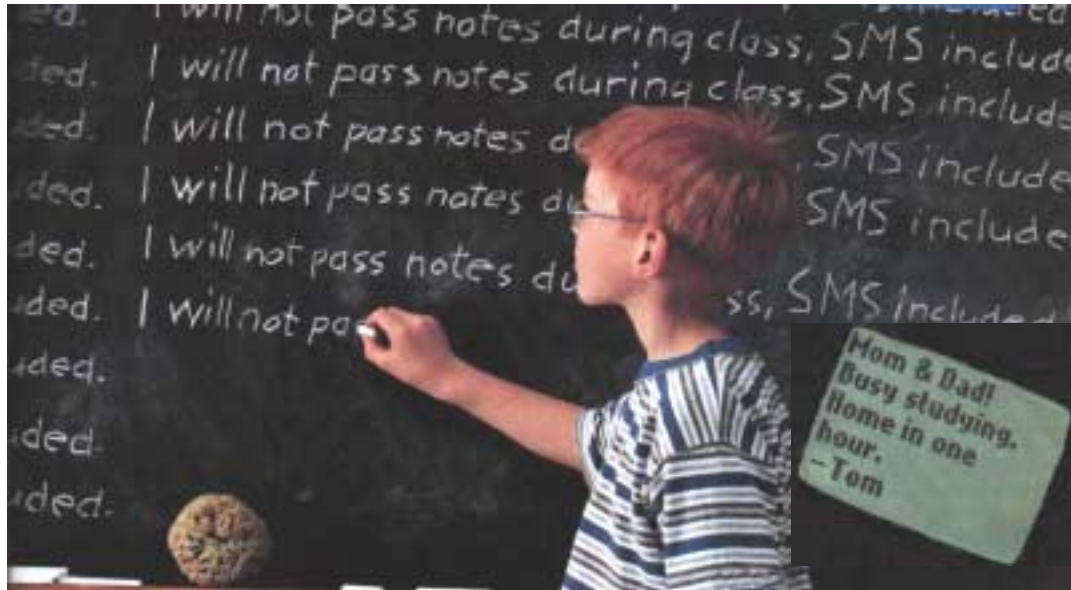
- **Personal Assistant Service incorporating natural language VUI**
- **Encompasses specific customer-oriented processes and services**
- **Strong brand marketing of system**







# Not only for the road warrior



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# Usability

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**“It’s all about  
the end-user”**



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# Voice-Controlled Voice Mail at Blu

- 4<sup>th</sup> largest wireless operator in Italy
  - About 2 million subscribers
  - Offer voice messaging to all subscribers
  - Last year, changed the default interface to voice mail for all subscribers to be a VUI
- Recent user survey results
  - 88% rate overall satisfaction as very good or higher
  - 40% said that their usage has increased due to convenience, ease of use, and speed
- Carrier believes they achieve differentiation, customer loyalty, and increased airtime

Source: Blu, Comverse

# Key Criteria for Using Voice to Access Specific Applications Whilst Mobile

| Criteria For Using Voice Portal                               | Relevant Applications  |
|---|--|
| No access to mobile data services (voice only mobile handset) | All applications   |
| Non IT literate / impaired vision                             | All applications   |
| Human conditioning / preference                               | Roadside assistance, medical information/ assistance, (all applications)   |
| Hands free / eyes free  | Navigational, in-car infotainment, PIM, (all applications)                 |
| Efficiency  | Dictating e-mails, voice dialler, calendar entry, reservations, v-commerce |
| Short & repetitive tasks                                      | Checking stock prices, messaging   |
| Enriching content   | Horoscopes, sport, jokes   |
| Privacy and security  | V-Commerce, banking  |

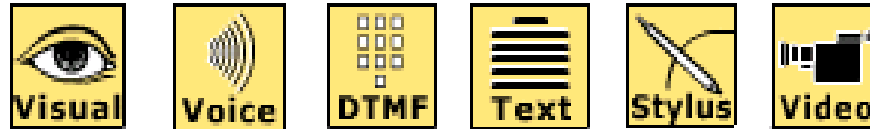
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# The Current User Experience

- Limitation on user interaction for command, navigation, response and presentation
  - Effectively limited to one mode of interaction per session
  - Not optimal for integrated voice and data applications
- Current technical issues:
  - Voice call and WAP browser both require voice channel
  - Simultaneous use of wireless voice and SMS channels yields only limited multimodal capability
  - Simultaneous voice & data on single channel requires 3G
  - And ... need standards to enable interoperability of in-network systems with applications and content

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# Multimodality – The Next Generation



- The next generation multimodal systems
  - Will deliver a superior user experience
  - That allows end-users to choose their preferred interaction modes
    - For command and navigation input and
    - For response and presentation output
  - At any point during a session
  - Regardless of how the content was originally created

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# Driving Standards to Accelerate Development and Deployment

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VoiceXML and SALT



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# Carrier-Grade Solution Requirements

- Carrier-grade solutions must be capable of being
  - Deployed globally
  - In multiple languages
  - Scalable to millions of users
  - With high reliability
  - And security
  - Customized to the brand and other requirements of the network operator
  - Integrated with existing OMAP systems
  - Interoperable with 3rd-party applications
  - Interoperable with 3rd-party content
  - Etc., etc., etc.

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# Disaggregation

- Internet model of disaggregation created the Web industry
  - Browser client
  - Application server
  - Data server
- Disaggregation to a layered model for mobile telecommunications promotes interoperability
  - UI presentation
  - Application
  - Data/content

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# Why VoiceXML?

- Emerging industry standard
  - Driven by VoiceXML Forum with over 600 members and W3C with over 500 members
  - 3 years of maturity – VoiceXML 1.0 in deployments, W3C working draft of VoiceXML 2.0
  - Delivers on its promise – VoiceXML enables disaggregation and interoperability of VoiceXML interpreters and applications and features for development of substantial applications
- Strong momentum to industry-wide acceptance
  - However, VoiceXML does have weaknesses; e.g., with respect to multimodality and telephony call control

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# Why SALT?

- In the formative stages to be industry standard
  - Initially driven by industry-leading founders – Cisco, Comverse, Intel, Microsoft, Philips, SpeechWorks
  - Growing broad range of industry players involved
  - Draft specification Version 0.9 released for comment in March, with submission to standards body expected mid-2002
- Why SALT?
  - SALT is a lightweight set of extensions to existing markup language with a focus on multimodal and telephony access
  - Unifies voice and visual Web application in a single browser
  - Enables developers to seamless embed speech enhancements in existing HTML, XHTML and XML pages, using familiar languages, technologies and toolkits
- SALT and VoiceXML
  - Both standards enable interoperability of in-network systems with applications and content

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# Summary

- Mobile services are a huge opportunity
  - Users, network operators, vendors all benefit
- Users demand great service
  - QoS of network
  - Great applications and content
  - Highly usable, intelligent user interfaces
- Standards, enabling disaggregation to an “Internet” model, will drive the industry