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Abstract	An operator's perspective of the benefits of standardizing MBWA is discussed
Purpose	For informative use only
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Standardizing Mobile Broadband Wireless Access: An Operator's Perspective

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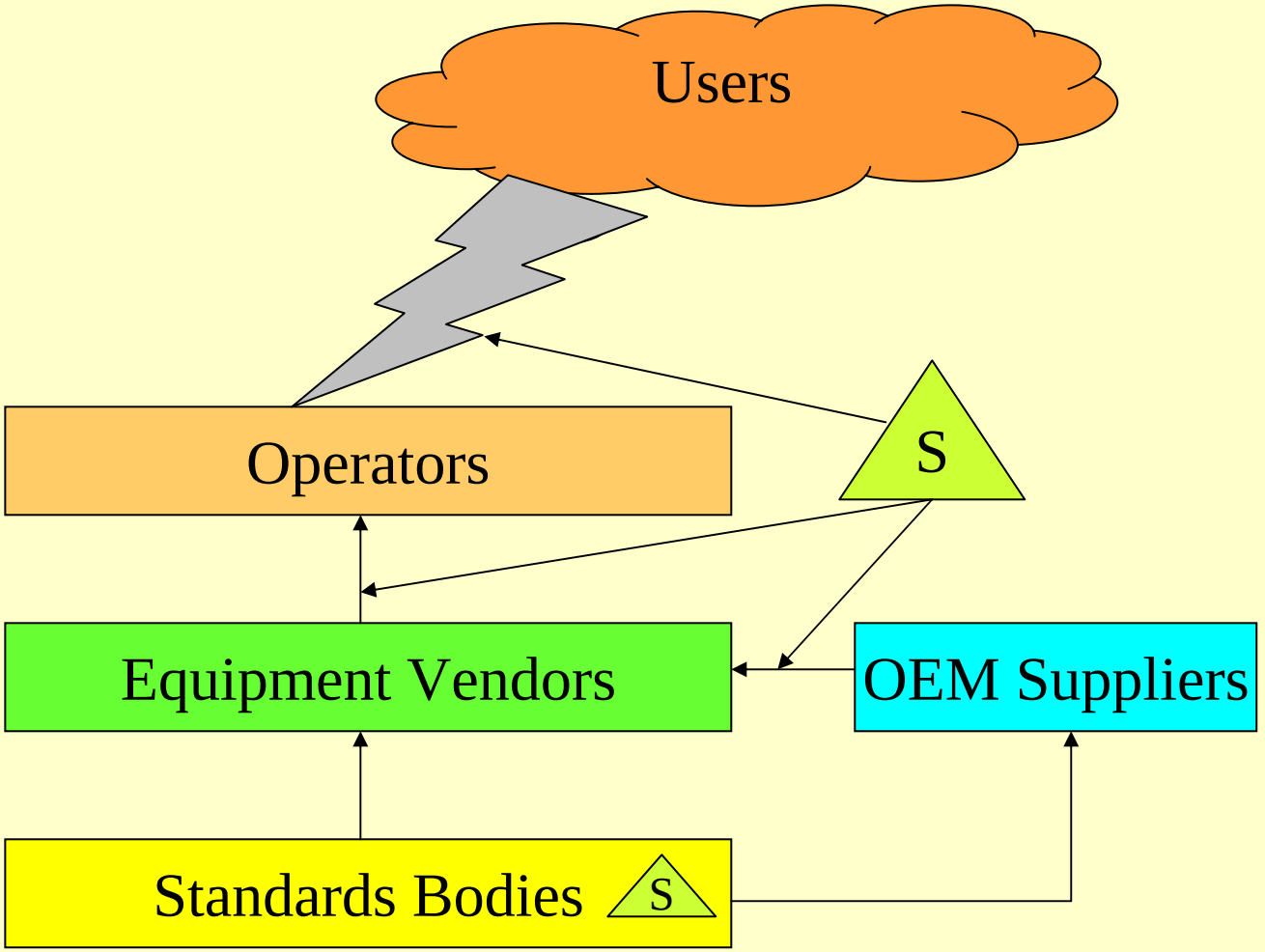
Outline

- What are Standards and Why Standards?
- Benefits to Operators
- Why MBWA
- MBWA and 3G
- Standards Procedures and Timing
- Licensing and Patent Policies
- Conclusions

Vendors, Operators, and Users



What is a Standard?

- Telecommunication standards define compatibility (not sameness) of the transmitter and receiver [1]
- In addition to compatibility, standards specify performance and quality, inter-layer interfaces, and standard test & measurement methods
- Standards defining the lower layers, such as PHY and MAC, are closely based on physical laws and are inherently more important to standardize.

[1] K. Krechmer, "Standards make the GIH Possible," IEEE Communications Magazine, August 1996

“Successful” Standards

- “Successful” telecom standards are those that are widely implemented by vendors, and used by operators [2]

- Operators tend to select standards that are:
  - Implemented by more than one vendor
  - As transparent to the end user as possible
  - Flexible in its evolution
  - Simple and maintain and support
  - Able to interwork with other operators’ networks and end user equipment / devices

[2] M. H. Sherif and D. K. Sparrell, "Standards and Innovation in Telecommunications," IEEE Communications Magazine, July 1992

Why Standards? [2]

- Proprietary or conflicting implementations increase manufacturing and operating costs
- Standards ensure compatibility, including multi-vendor compatibility, upgrade or multi-vintage compatibility, and product compatibility
- Standards bring about a reduction in the variety of interfaces, thus easing the burden on equipment vendors, operators, and users

[2] M. H. Sherif and D. K. Sparrell, "Standards and Innovation in Telecommunications," IEEE Communications Magazine, July 1992

Benefits to Operators

- Standards promote competition between infrastructure vendors, leading to cost benefits for the operators
- Standards provide a means for roaming without expensive multi-mode terminals, hence increasing revenue opportunities for the operator
- Standards define new products and services through technological innovation

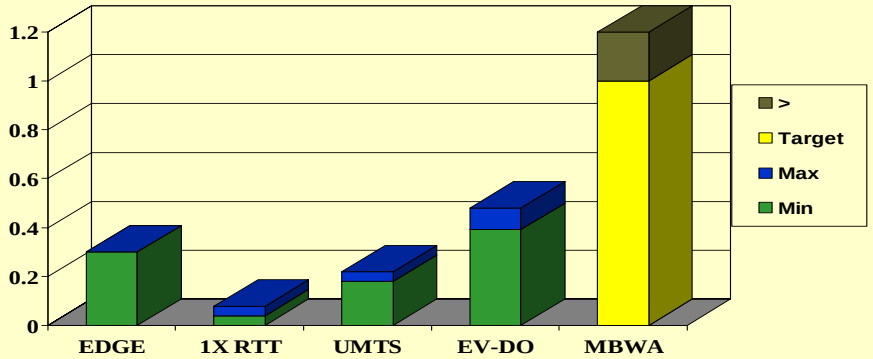
Why MBWA? – Operator's Perspective [3]

- Operators must provide low-cost, differentiated services; the move to all-IP services promise both
- New mobile wireless technology must be IP-friendly and QoS-enabled at layer 2
- It's not *just* about Broadband, it's about efficient, integrated IP-based services!

[3] D. Zufall, "Why Broadband," MBWA Tutorial, 802 LMSC Plenary Session, March 2002

MBWA and 3G: Overlap or Progress

- MBWA targets significantly higher spectral efficiencies[4]



- Desired characteristics[5]
  - End-to-end QoS, Gaming capable latency, IP enabled terminals for multimedia application support,……
- Overlap in other areas fosters competition between technology approaches and equipment vendors
- MBWA brings needed progress to the PHY and MAC layers of wireless standards

[4] M. Klerer, "Uniqueness and the MBWA Par," MBWA ECSG 802m_ecsg-02-17, November 2002
[5] M. Klerer, "Desired Characteristics of MBWA,"MBWA ECSG 802m_ecsg-02-08, September 2002

Standards Process and Timing

- Majority, Unanimity, or Consensus?
  - Political, technical, and commercial motivations
- Working Group is the lowest functional unit of standards development and must have the ability of consensus, with contributors being empowered to compromise
- Development of standards result from technical contributions defined by a process of generating, releasing, and/or maintaining information [6,7]
- Technology presented must not be totally new in concept to ensure timeliness

[6] A. Bienayme, "Technology and the Nature of the Firm," Proc. 1st Int'l Conf. on Tech. Mngmt, Feb 1988
[7] J. Frank, "Emerging Standards: From Island to Island," Enterprise Network Strategy Conference, June 1989

Licensing and Patent Policies

- Licensing and patent policies are key to the implementation and use of standards
- IEEE Bylaws state that standards may incorporate patented interfaces or capabilities provided that the patent holder assures licensing at reasonable rates and without any discrimination [8]
- IEEE rules further state that IEEE is not responsible for identifying or verifying patent rights [9] – it is up to the working group and patent holders
- Applies to components also, such as codecs and vocoders

[8] IEEE-SA Standards Board Bylaws, clause 6
[9] IEEE-SA Standards Board Operations Manual, clause 6.3.1

Conclusions

- Evolving standards with widespread usage, specially those addressing the lower layers, are generally beneficial to operators
- MBWA offers operators significant improvements in spectral efficiency and IP-based, QoS-enabled services
- Standardization process involves technical contributions based on tested concepts, and is dependent upon consensus for timeliness
- Equitable and practical licensing arrangements are key to realizing the benefits of standards