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<th>Project</th>
<th>IEEE 802.20 Working Group on Mobile Broadband Wireless Access</th>
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<td><a href="http://grouper.ieee.org/groups/802/mbwa">http://grouper.ieee.org/groups/802/mbwa</a></td>
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<td>Title</td>
<td>Standardizing Mobile Broadband Wireless Access: An Operator’s Perspective</td>
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<td>Abstract</td>
<td>An operator’s perspective of the benefits of standardizing MBWA is discussed</td>
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Standardizing Mobile Broadband Wireless Access: An Operator’s Perspective

Arif Ansari
Nextel Communications

IEEE 802.20 MBWA
January 2003
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

- Operators
- Equipment Vendors
- OEM Suppliers
- Standards Bodies
- 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

- 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

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

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

- 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!

MBWA and 3G: Overlap or Progress

• MBWA targets significantly higher spectral efficiencies

- Desired characteristics
  - 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

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

• Technology presented must not be totally new in concept to ensure timeliness

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
• IEEE rules further state that IEEE is not responsible for identifying or verifying patent rights – 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
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