| Project | IEEE 802.20 Working Group on Mobile Broadband Wireless Access  
<http://ieee802.org/20/> |
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<td>Title</td>
<td>802.20.3 PICS Proforma: Introduction and Issues</td>
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<td>Date Submitted</td>
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| Re: | C802.20-08-05: PICS Considerations for 802.20 |
| Abstract | This contribution discusses the requirements for the PICS Proforma that will become 802.20.3 and suggests a method of organizing it. |
| Purpose | For consideration of 802.20 in its efforts develop a PICS Proforma document. |
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802.20.3: PICS Proforma Considerations
Ballot comments regarding PICS

• From the SB Comments, PICS requests
  – Comment (paraphrased): Straightforward to generate
  – Suggestion: “convert every ‘shall’ clause into a table entry”

• A few realities from the draft…
  – Draft currently has ~6000 ‘shall’s and ~150 ‘should’s
    • Many “shall”s are of a procedural nature (since procedures are carefully specified)
  – The AN is specified with mostly ‘should’ clauses
    • This allows infrastructure manufacturers freedom to implement in accordance with (licensed) customer wishes
    • Shall clauses are used only when absolutely necessary

• The PICS can be organized more efficiently than this!!
  – It is more efficient (and within the intent of a PICS) to consider features from a higher level rather than at a microscopic level
Documents Governing PICS Proformas

• The ITU-T X-Series
  – provides recommendations and a framework for conformance tests and specifications

• Title: “OSI Conformance Testing Methodology and Framework for Protocol”
  – ITU-T X.290 - General concepts and framework
  – ITU-T X.296 - Implementation conformance statements

• Other 802 standards documents
  – IEEE 802.11, 802.16 both have PICS sections
X.296 Intent for ICS Proforma

• An ICS proforma is essentially a set of items.
  – Should include
    • Major mandatory capabilities
    • Major optional capabilities
    • Defines ‘role’s that the system can operate in (eg. AT, AN)
    • The PDU’s of the “protocol” are also recommended
      – each PDU can correspond to an item in the PICS proforma
  • Emphasizes global implementation options
  • Emphasis is on “static” conformance requirements
  • Does not repeat dynamic conformance requirements from the spec
• For 802.20: Propose a “Top Down” approach to PICS
Suggested Organization

- 625k
  - AP (TDD)
  - AT (TDD)

- WB
  - AN
  - AT
    - FDD
    - TDD
    - FDD
    - TDD
Looking at the WB Protocols

• **Services Sublayer**
  – Signaling protocol, Inter-route tunneling protocol, ROHC support protocol, EAP support protocol
• **Radio Link Sublayer**
  – QOS Management protocol, Radio Link protocol, Stream protocol, Route protocol
• **Lower MAC Sublayer (TDD/FDD differences)**
  – Packet Consolidation protocol, Superframe Preamble MAC protocol, Access Channel MAC protocol, FLCS MAC protocol, FTC MAC protocol, RCC MAC protocol, RTC MAC protocol
• **Physical Layer**
  – Physical layer protocol
• **Security Functions**
  – AES Ciphering protocol, Message Integrity protocol, Key Exchange protocol
• **Connection Control Sublayer**
  – Air Link Management protocol, Initialization State protocol, Idle State protocol, Connected State protocol, Overhead Messages protocol, Active Set Management protocol
• **Session Control Plane**
  – Session Control protocol
• **Route Control Plane**
  – Route Control protocol
• **Broadcast Support**
  – Control protocol, Packet Consolidation protocol, Security protocol, Inter-Route Tunneling protocol, MAC protocol
Conclusions

• Simplistic approach will not work well
  – Due to the complexity of the specification
  – Many “dynamic” (i.e. procedural) requirements
  – Style of requirements use “should” for infrastructure

• Intent of X.296 is a “high level” view
  – Emphasis on static requirements, roles, high level view

• An example organization/structure was presented
  – There are other possibilities, such as organizing by AN, AT
  – Organizing by “modes” as presented seems to be the best approach
  – The wideband mode has 30+ protocols (most of them required)
  – Each protocol has one or more PDUs (messages)

• How much detail beyond protocol and PDU support is useful?
  – Protocol and PDU support are the most relevant for compliance
  – Going further may introduce significant confusion