Process and rules for development of SNMP solution sets

IEEE 802.16 Presentation Submission Template (Rev. 8.3)

Document Number:

IEEE S802.16i-06/023r1

Date Submitted:

2006-07-07

Source:

Krzysztof Dudzinski
Airspan

Voice:
Fax:
E-mail: kdudzins@airspan.com

Venue:

IEEE802 plenary. IEEE802.16 Meeting session #44.

Base Document:

IEEE C802.16i-06/0230

Purpose:

Illustration of the choice of options for new process and rules for development of SNMP solution sets. This material was discussed on the meetings of SNMP ad-hoc group created by Netman group during session #43.

Process and rules for development of SNMP solution sets

- The purpose of ad-hoc as defined during session #43: “The Chair created an SNMP Solution Set Ad-hoc group to continue development of an SNMP contribution and coordination of SNMP contributions for Session 44.”
- The scope wasn’t defined in details but the work of ad-hoc must satisfy the following objectives:
  1. Propose fixes and extensions to 802.16f MIB as per changes introduced by Cor1 group (all changes) and .16e group (changes relevant to current scope of 802.16f MIB).
  2. Suggest the best way for the mobility enhancements development to allow easy generation of SNMP solution set at a minimum and to allow the maintenance of the new MIB without breaking compatibility

1) 802.16i How many MIB modules? - Options

- Option 1a): Two MIB modules (current approach):
  - Interface MIB (802.16f based: all objects)
  - Device MIB (802.16f based)
- Option 1b): Three (or more) MIB modules:
  - Interface MIB 1 (802.16f rev 2: common objects and fixed BWA objects)
  - Interface MIB 2 (mobility objects)
  - Device MIB (802.16f rev 2)

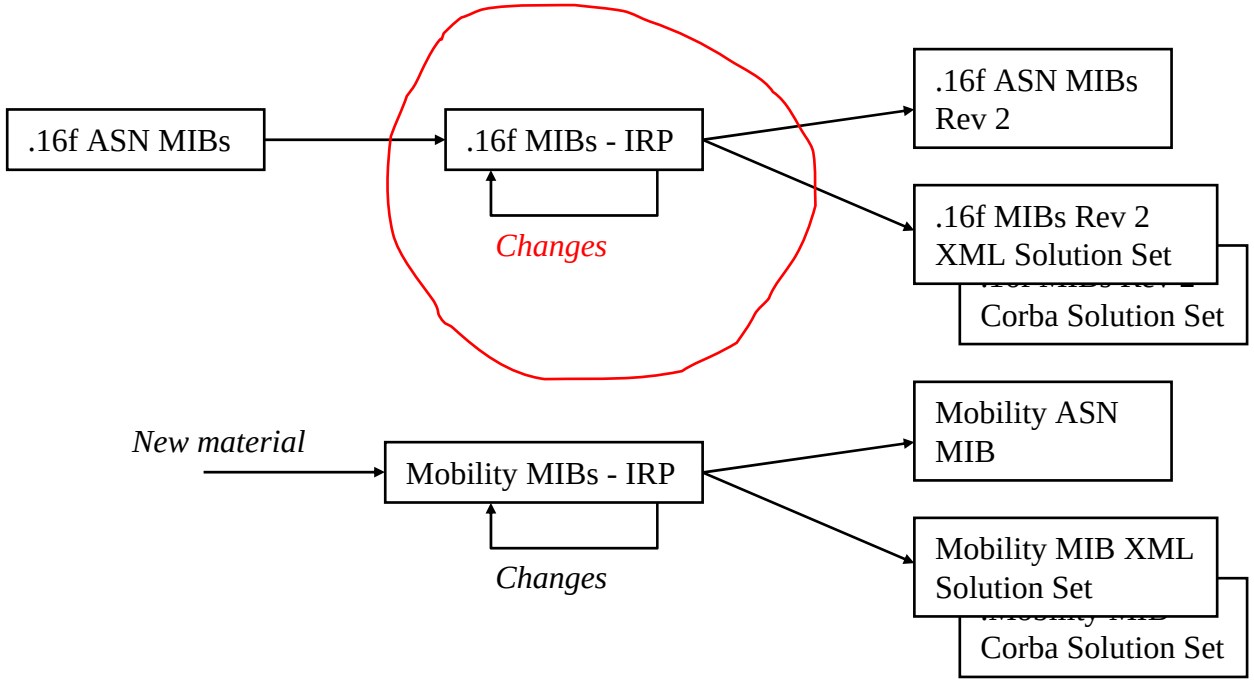
1) Choice: Option 1b) - Three or more MIBS

- Proposal: **Use option 1b):**
  - WMAN2-IF-MIB (as defined in .16i draft2) needs removal of all the content and waits for new material only to be included likely by translation of IRP model
  - Manufacturers of 802.16 fixed BWA equipment with SNMP support would continue to work with WMAN-IF-MIB and WMAN-DEV-MIB modules and their revisions.
  - Manfacturers of 802.16 mobile BWA equipment with SNMP support would implement all relevant common objects from WMAN MIB modules and in addition implement WMAN2-IF-MIB module and other new MIB modules if defined.
- Justification:
  - More smaller MIBs dramatically increase clarity and maintainability
  - Maintaining .16f MIB independently is easier than as a part of bigger MIB
  - Clearly defined scope of the new MIB module – mobility
  - Customers/manufacturers of fixed BWA equipment will not accept upgrade of the MIB to completely new MIB if the only thing they want is fixes and changes to existing MIB tables.
  - IRP technology is offered without easily available cheap automation tools (unlike ASN MIB with compilers and compliance checkers). The development and validation require a lot of manual work (diagrams, textual description of classes and arguments etc.). Surely it's better to start with smaller MIB to be able better to cope with the change management.

Note: Regardless of what option is chosen the fixes and changes relevant to existing 802.16f MIB objects/tables must be introduced. Netman group is the best suited for this task and it is in scope of 802.16i.

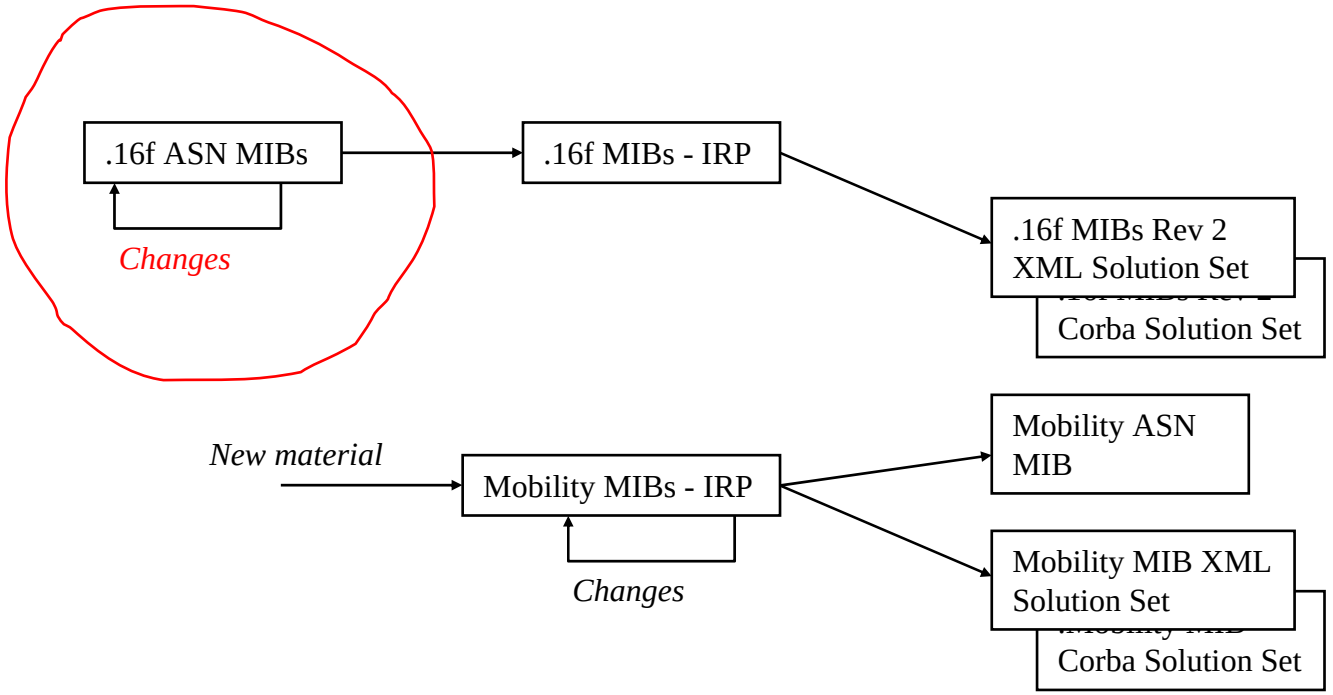
2) 802.16i How to get there? Option 2a)

- Option 2a): All MIB development and maintenance done using IRP methodology



2) 802.16i How to get there? Option 2b)

- Option 2b) : Only new MIB developed using IRP methodology. Fix 16f ASN MIB first. 16f ASN MIB reversed engineered after completely fixed.



2) Choice: Option 2b) – fix .16f ASN MIB first

- Proposal: **Use option 2b)**:
  - WMAN2-IF-MIB (as defined in .16i draft2) becomes completely new MIB mainly with mobility related objects. It is developed mostly using IRP methodology. Mobility objects already defines in ASN1 MIB will be retained.
  - WMAN-IF-MIB and WMAN-DEV-MIB are fixed first as per Cor1 and relevant part of .16e work
- Justification:
  - The main purpose of rev-eng of .16f MIB is to allow other solution sets to be generated to benefit from already defined objects, common to both fixed and mobile. Seems appropriate to do rev-eng on fixed revision of this MIB.
  - .16f MIBs are matured and do not require any major rework. The fixes and changes can be done very quickly (1 meeting, maximum 2). The same in IRP model will take much longer.
  - Fixes applied directly to .16f will avoid unnecessary rev-eng/translation cycles
  - In absence of good automation tools for rev-eng and translation to SNMP solution set it is unlikely that any maintenance of any SNMP MIB will happen via IRP. The same applies to the existing .16 MIBs.
  - IRP model doesn't yet demonstrates that translation of the IRP created from reversed engineered ASN MIB will be capable of generating backwards compatible ASN MIB (requires object or metadata to store ASN OIDs, default values, descriptions and others). Sure this must be possible with UML but no example of how to do this seen.

Appendix: 802.16i SNMP ad-hoc vs PAR

This slide discusses the 802.16i scope in respect to SNMP ad-hoc objective.

Objective 1. of ad-hoc relates directly to the unanswered question about how to proceed with the fixes and modification to the existing 802.16f MIB. The quoted below references to .16Cor1 and .16f (in particular section 15) justify the right attention to be given to the objective 1. in the work of the group.

- From PAR scope (section 13):
  - "… mobility enhancements to IEEE Std 802.16 MIB …"
  - Contingent upon the completion of: "… IEEE 802.16f, IEEE 802.16Cor1 and IEEE 802.16e …"
- From PAR reason (section 14):
  - "The purpose of this project is to provide a definition of managed objects to enable the standards-based management of 802.16 devices."
- From PAR reason (section 15):
  - "… This project extends upon the work of IEEE 802.16f in adding MIB support for new features and functions added in IEEE 802.16e."