Agenda

- Problems with YANG conformance mechanisms
- Solution proposal
  - YANG Package specification
  - YANG Package capability
- Need new YANG conformance work?
YANG Conformance Problems 1/3

- **Data definition drift**
  - Definitions in 1 module change as imported modules are updated

- **Import by revision unusable**
  - Have to specify exact revisions and need to be used everywhere to prevent ambiguity

- **Wrong abstraction level**
  - Should be modeling service level conformance, which can be spread across several YANG modules
YANG Conformance Problems 2/3

- Conformance levels are too course-grained
  - Mandatory core + set of purely optional features (objects with \texttt{if-feature} statements)
  - No way to machine-specify a YANG feature to be required for some service level
  - No way to machine-specify a NETCONF capability to be required for some service level
  - No way to specify a new conformance level using a subset of the core or a YANG feature without republishing the original module
Conformance should be based on use cases, not YANG modules

- Several conformance profiles can be supported by a single YANG module, or set of YANG modules
- A single use-case can require several YANG modules or subsets of YANG modules, and possibly some specific protocol capabilities
- A new YANG module to for a new use case should be able to specify new conformance subsets without breaking old use cases or requiring any edits to existing data definitions
Solution Proposal

- **YANG Package Specification**
  - Text file containing conformance profiles
  - Separate from YANG modules since use-case aligned, not module aligned
  - Defines minimum service conformance levels, which can vary from loose to exact requirements
  - Simple design allows package and profile reuse and a lot of flexibility how profiles are specified
YANG Package Contents

YANG Package interfaces

Conformance Profile A
  require-module ietf-interfaces
  require-feature if-mib
  require-object /foo/bar

Conformance Profile B
  include-profile A
  require-capability :validate
  require-package acme-interfaces

require-package acme-interfaces
Solution Proposal

- YANG Package Capability
  - NETCONF server will advertise each YANG package it supports, including 3 parameters
    - package identifier
    - package revision date
    - conformance profile identifier
  - YANG module capabilities still needed to advertise exact revisions and YANG features
    - conformance profile is minimum requirements, which may be less than actual implementation
Need YANG Conformance Work?

- Should better YANG conformance mechanisms be standardized?
  - YANG Packages allow service level conformance specification
  - No changes to existing YANG conformance mechanisms are needed
  - No NETCONF protocol changes are needed