Reducing the Scope of the CIM Update

Rick Landau
Dell, CTO Office
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BACKGROUND - Process to Change the Model
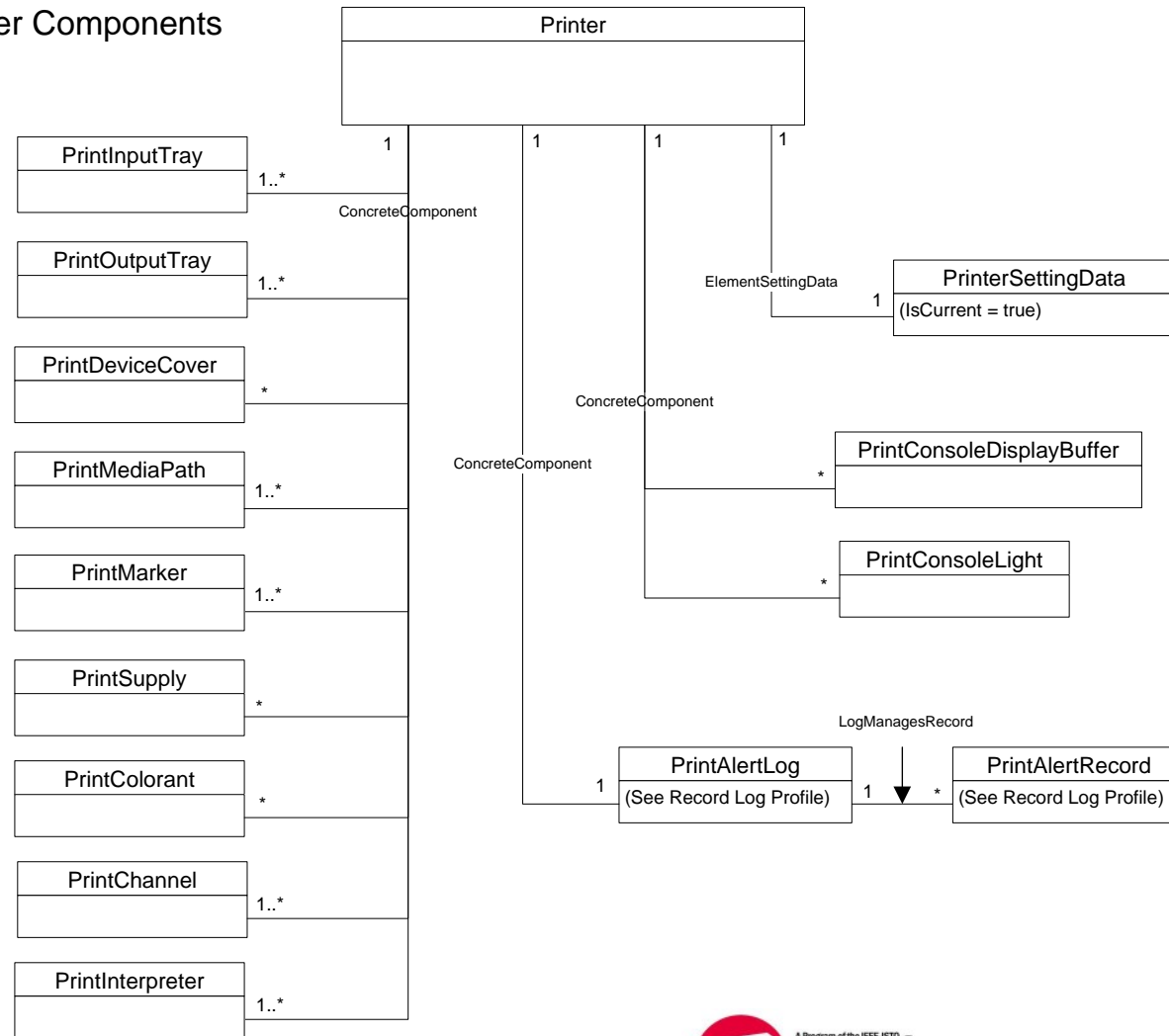
- In DMTF, submit Change Requests (CRs) to change CIM classes or define new classes

  – Concentrate on printer as device first, then service, job, queue

  – Change in phases: cosmetic changes, corrections, major restructuring

- Decide on changes, draft CRs, submit CRs to appropriate CIM Working Group

  – Usually the CIM Core Schema Working Group

- In PWG,

  – Selected range of printers and use cases

  – Selected properties to move forward from Printer MIB

  – Developed model of class inheritance and relationships

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BACKGROUND - Method

- Doing major surgery on CIM_Printer (the print device)
  - Will add 11 classes analogous to prtXxx tables
    - InputTray, OutputTray, DeviceCover, MediaPath, Marker, Supply, Colorant, Channel, Interpreter, ConsoleLight, ConsoleDisplayBuffer
    - Actual class names have "CIM_Print" prefix
  - Plus three special classes: AlertLog, AlertRecord, PrinterSettingData
  - Also add properties to the CIM_Printer base class
  - Total approx 120 new properties from PrinterMIB and Semantic Model

- Many CRs to write
  - Custom machine translation from MIB to MOF format, does 90% of the work (thanks, Ira)
    - Add Status and Key properties by hand editing
    - Run through MOF lint and pretty printer
    - Create a DMTF CR to add the class

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Printer Components

```
                                    ┌─────────────────────────┐
                                    │         Printer         │
                                    ├─────────────────────────┤
                                    │                         │
                                    └─────────────────────────┘
                                       1      1    1       1
  ┌─────────────────┐
  │  PrintInputTray │
  ├─────────────────┤
  │                 │ 1..*
  └─────────────────┘      ConcreteComponent

  ┌─────────────────┐                                                ┌─────────────────────────┐
  │ PrintOutputTray │                              ElementSettingData│    PrinterSettingData   │
  ├─────────────────┤                                          1     ├─────────────────────────┤
  │                 │ 1..*                                           │    (IsCurrent = true)   │
  └─────────────────┘                                                └─────────────────────────┘

  ┌─────────────────┐
  │ PrintDeviceCover│                         ConcreteComponent
  ├─────────────────┤
  │                 │ *                                    ┌───────────────────────────┐
  └─────────────────┘                                      │ PrintConsoleDisplayBuffer │
                                                           ├───────────────────────────┤
  ┌─────────────────┐                                  *   │                           │
  │  PrintMediaPath │                                      └───────────────────────────┘
  ├─────────────────┤
  │                 │ 1..*                                 ┌───────────────────────────┐
  └─────────────────┘                                      │     PrintConsoleLight     │
                                                           ├───────────────────────────┤
  ┌─────────────────┐                                  *   │                           │
  │   PrintMarker   │                                      └───────────────────────────┘
  ├─────────────────┤
  │                 │ 1..*
  └─────────────────┘

  ┌─────────────────┐
  │   PrintSupply   │
  ├─────────────────┤
  │                 │ *
  └─────────────────┘                          LogManagesRecord

  ┌─────────────────┐          ┌──────────────────────────┐          ┌──────────────────────────┐
  │  PrintColorant  │          │      PrintAlertLog       │          │     PrintAlertRecord     │
  ├─────────────────┤        1 │ (See Record Log Profile) │ 1   *    │ (See Record Log Profile) │
  │                 │ *        └──────────────────────────┘          └──────────────────────────┘
  └─────────────────┘

  ┌─────────────────┐
  │  PrintChannel   │
  ├─────────────────┤
  │                 │ 1..*
  └─────────────────┘

  ┌─────────────────┐
  │ PrintInterpreter│
  ├─────────────────┤
  │                 │ 1..*
  └─────────────────┘
```

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Problem: Model Growing More Complex

- For some properties in some classes,

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Class Arithmetic

- Today
  - 1 class, 1 instance of that class
  - Function: almost none

- Expected
  - 15 classes, 50-80 instances
  - Function: almost everything in SNMP MIB

- Being pushed toward
  - + 6-10 classes, +15-30 instances
  - Function: just the same, but different structure

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What Kind of Restructuring?

- Old Science: OutputTray.MaxCapacity, int, read-write

  - -2 = Unknown
    -1 = No restrictions
    otherwise = value

  - If sensed by HW, then read-only; else value may be set by user

- New Science: new XxxCapabilities class plus association

  - OutputTray.MaxCapacity, int, writable

    - -2 = Unknown
      -1 = No restrictions
      otherwise = value

  - OutputTrayCapabilities.MaxCapacityWritable, boolean

  - ElementCapabilities association instance to relate the two

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What is TOO Complex?

- Everyone's camel has a different breaking point

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What to Do? Proposal

- Remove some questionable items
  - In OutputTray, the most troublesome were all Bs in the voting
  - Make some other items read-only instead of writable thru CIM
    - If there is a security concern, they won't be writable by SNMP-based CIM proxy agents, anyway
    - Use EWS interface instead

- Reconsider the priority of some groups
  - Supplies = yes
    Input trays, media = yes
    Alerts = yes
    Paper paths = no
    Channels, interpreters = no
    Covers = maybe
    Console = no
  - Etc.

- Push hard for most important functions

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Questions?

- Discussion

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