

Declarative Progress Info in SDD

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Progress Reporting Characteristics

- Progress reporting is reporting the fraction of the job that is complete (and possibly time remaining)
- Progress reporting does not report *where* you are in an operation
 - E.g. Shouldn't go backwards
- Progress will never be continuous
- Showing progress is easy
- Showing smooth, granular progress is more difficult
- Showing accurate time remaining is even more difficult

Problem Statement(s)

- There is a general desire in user interfaces to provide progress or heartbeat indications during periods of no user interaction
- Time-to-completion **estimates** are also useful for longer operations (e.g. do I have time for coffee, or should I come back tomorrow?)
- Even in simple SDDs (e.g. single IU, single artifact), the install still may take a long time
- Aggregating disparate SDDs, each taking variable time, increases the need for feedback

Design Issues

- Declarative information only provides *hints* to a runtime
 - Runtime is free to ignore any and all progress info, or calculate differently
- Declarations must be very simple and intuitive
- Declarations must be useful even in aggregations
- Spec must offer guidance to runtimes on how to use declarations when calculating progress

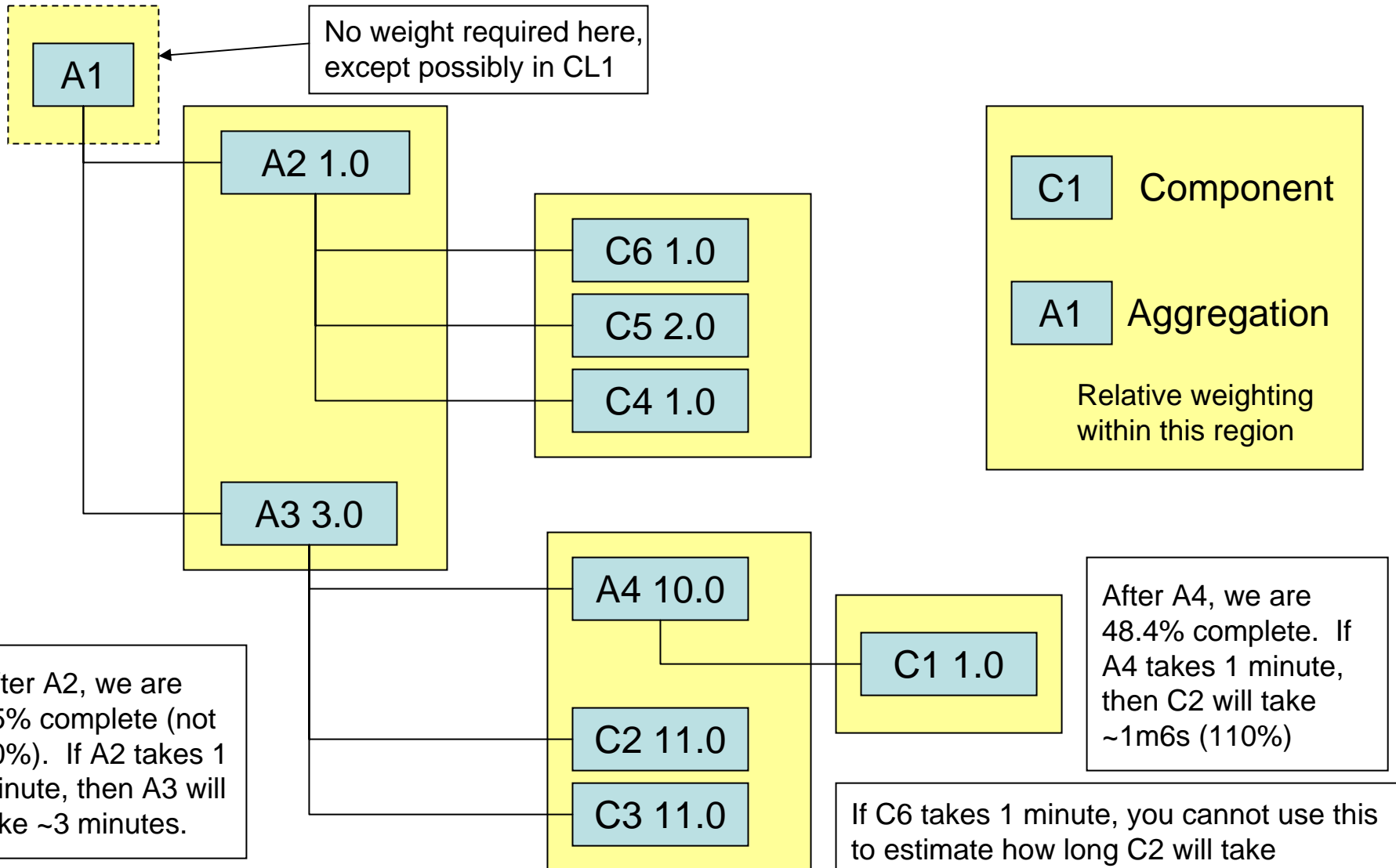
Design Issues (con't)

- Weighting systems are useful but issues lurk
 - What is the weight relative to?
 - Does the weight pertain to time, or percent complete?
 - How can weights be compared between two or more unrelated developers
- Weighting within a single SDD, or within a single aggregated SDD makes sense
 - Developer can measure relative weights through testing
 - Has nothing to do with reference hardware configs
- Overhead of install runtimes and deployment operations adds to the perceived time to deploy
- Some atomic operations take a long time (e.g. initializing DB, installing RPM).

Runtime Issues

- Progress reporting can be done in any number of ways, including using SDD hints
- Progress declarations in SDD can be used for progress, time remaining, or both
- Overhead of runtime, or low-level operations can be included in progress reporting (e.g. copying files to a remote host, or adding 10,000 registry entries)

Generic Aggregation Example

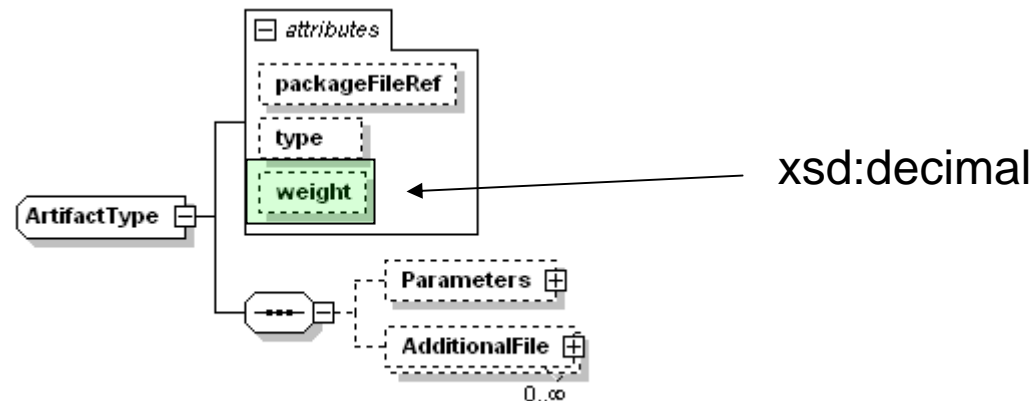


Proposal

- Runtimes have enough information to show crude progress already (e.g. operations performed / total operation count).
- Proposal is to add a weighting to artifacts and to contained package references, to allow SDD author to assign weight within scope of their SDD
- Weighting can be used to improve progress accuracy, and *estimate* time to completion.
- Open question: are there other actions (not associated with artifacts) that an SDD author should assign a weight?

CL1 SDD Solution

- Single Artifacts can be assigned a weight, but only makes sense in a CL1-style “Aggregation”



CL1 SDD Solution

- Example using SAP example
 - Weights make sense only in CL1-style “aggregation”

```
<Artifacts>
  <InstallArtifact type="executable" packageFileRef="sapinst" weight="1.0">
    <Parameters>
      <Parameter value="SAPINST_CONTROL_URL=CONTROL_FLOW/control.xml" name="sapinst.controlsript"/>
      <Parameter value="SAPINST_START_COMPONENT=scsinstall" name="sapinst.startcomponent"/>
    </Parameters>
    <AdditionalFile packageFileRef="CONTROL_FLOW/control.xml"/>
  </InstallArtifact>
  <UninstallArtifact type="executable" packageFileRef="sapinst" weight="1.0">
    <Parameters>
      <Parameter value="SAPINST_CONTROL_URL=CONTROL_FLOW/control.xml" name="sapinst.controlsript"/>
      <Parameter value="SAPINST_START_COMPONENT=scsuninstall" name="sapinst.startcomponent"/>
    </Parameters>
    <AdditionalFile packageFileRef="CONTROL_FLOW/control.xml"/>
  </UninstallArtifact>
</Artifacts>
```

CL2 SDD Solution

- CL2 has possibility of aggregation of external packages. Weight must be assigned at point of reference
 - Presumption is the SDD being “imported” is read-only, i.e. not being inlined
- For inlining of existing SDDs, or creation of new IUs/Artifacts, weights are assigned as per CL1
- All weights within the scope of a a given SDD are assumed to be relative to one another
 - But not to external SDDs
- Missing weights are assumed to be equal to the average

SDD CL2 Solution

