

SMI-S and the Role of SMI

September 2010

The SMI process for Standardization

Audience & Objectives

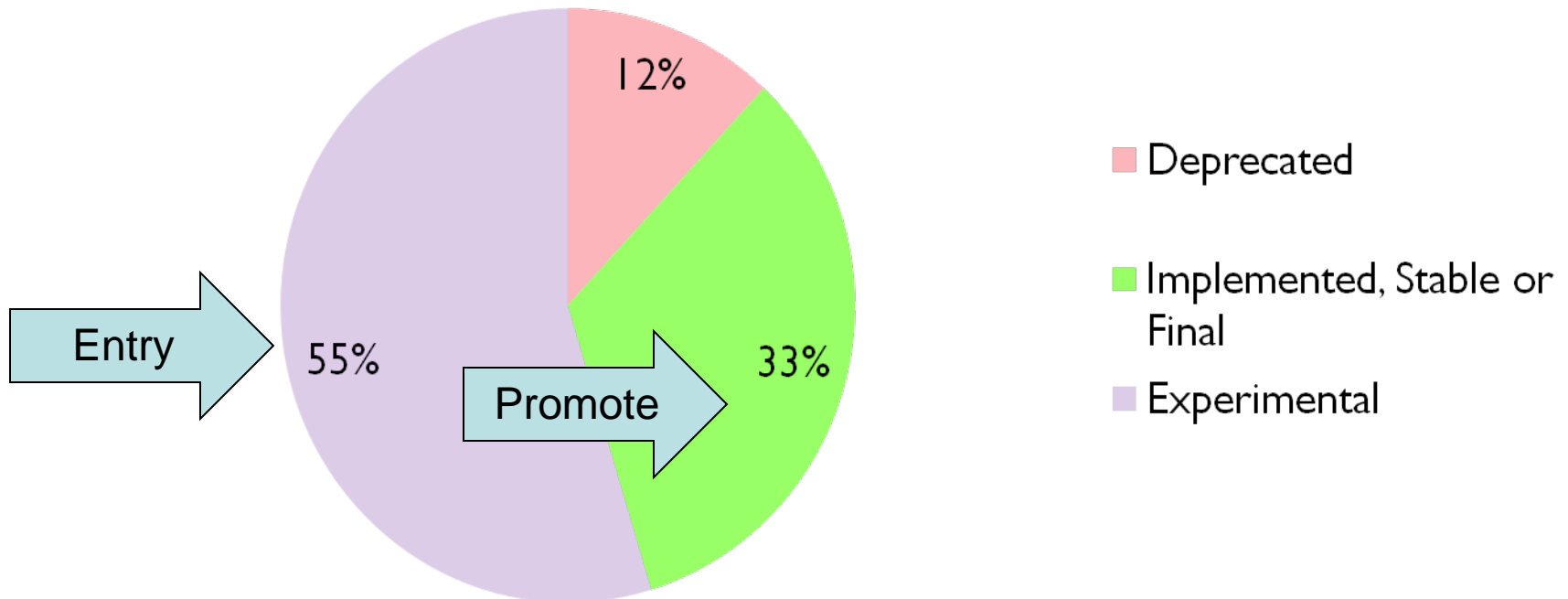
- ❑ **Audience:** People responsible for the development of storage devices and applications that manage those devices
 - ❑ Should be considering using SMI-S as the management interface
- ❑ **Objectives of Presentation:**
 - ❑ Identify how SMI-S may be extended to cover vendor capabilities
 - ❑ Identify how SMI-S material matures through informal and formal testing
 - ❑ Identify how a vendor can influence the standard
 - ❑ Identify key participants in the process of developing the standard

This is an overview of what goes into the making of the SMI-S standard to assist various readers in determining how they may influence the standard. It is **not** a comprehensive description of SMI processes.

Note: This presentation presents an overview of the rules for maturing specification content. The actual rules are more involved; they are simplified here to highlight the general thrust of the rules.

Creation of the standard is a multi-step process. The first two steps are required to get material into the standard, but the remaining steps are optional. However, to get to “final standard” status, all steps are required.

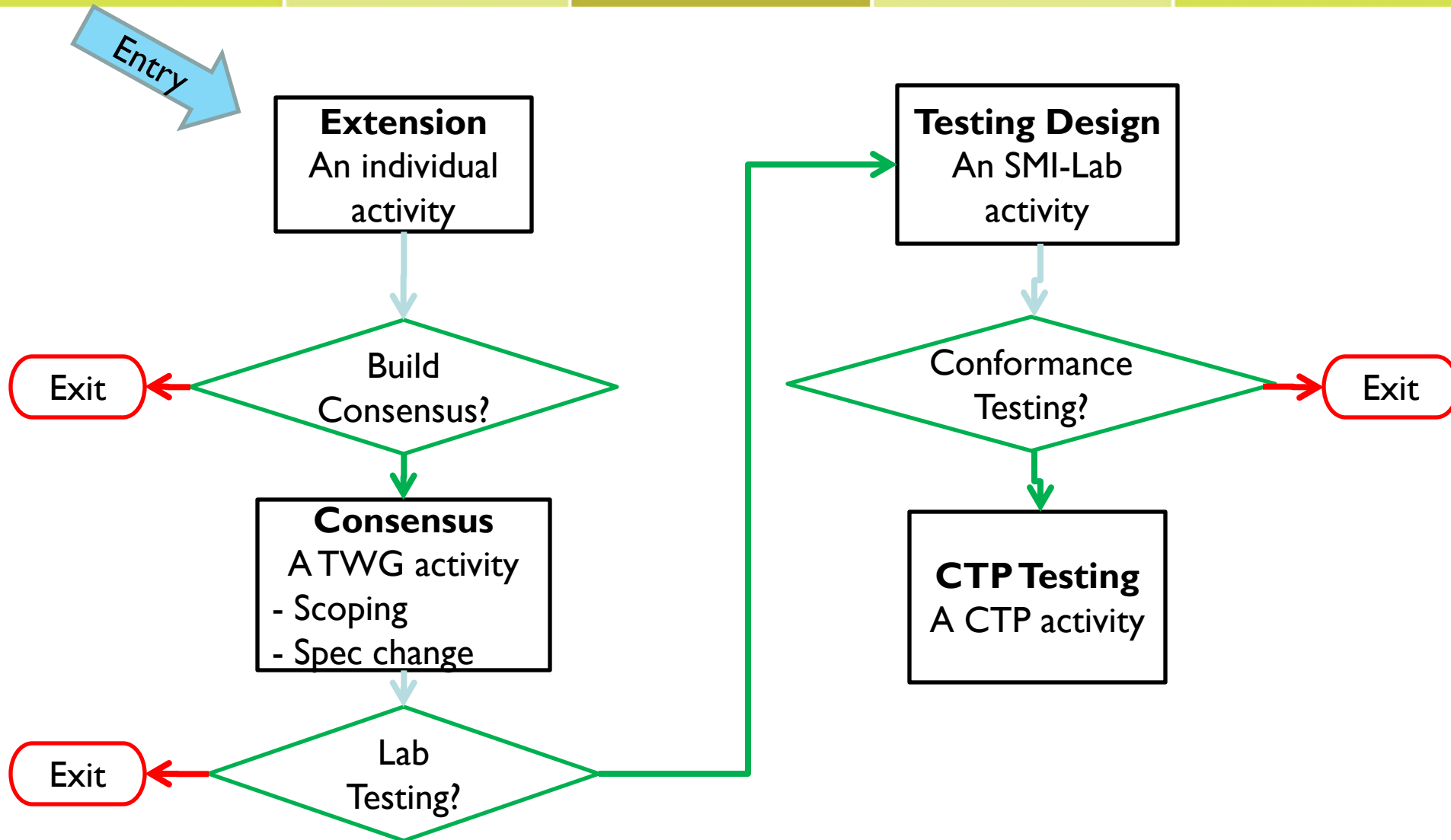
Profile Maturity



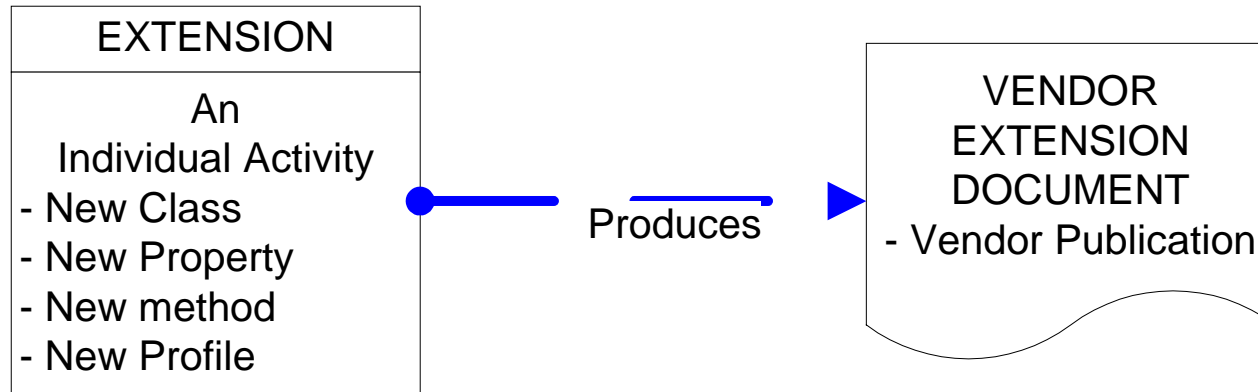
Agenda

- ❑ Flowchart of process
- ❑ Extending SMI-S
 - ❑ An individual activity
- ❑ Building Consensus
 - ❑ A TWG activity
- ❑ Testing a proposal
 - ❑ An SMI-Lab activity
- ❑ Validating Conformance
 - ❑ A CTP activity

Overview of Process

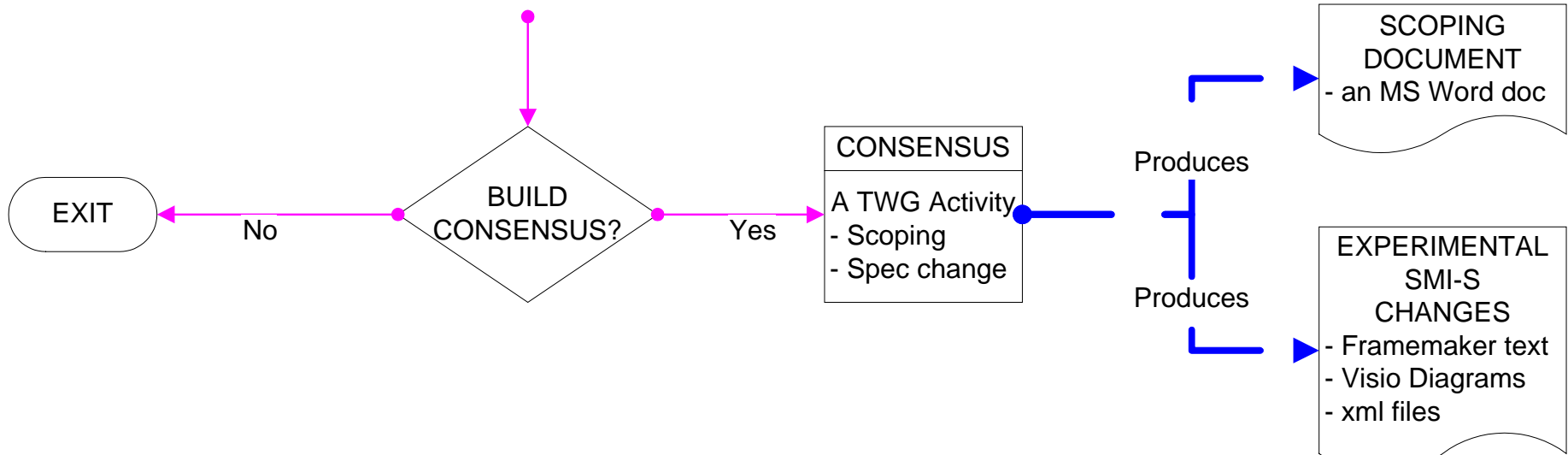


Extending the Standard



- ❑ SMI-S is based on CIM (Common Information Model), which is extensible.
- ❑ Vendors can extend SMI-S by adding classes, properties, methods and/or profiles—to perform functions their devices support.
- ❑ Extending SMI-S only requires the initiative of a single individual in a single company.
- ❑ Individual companies have extended SMI-S numerous times.

Building Consensus



1. Decide if you want/need consensus. (see [Considerations](#))
2. Develop a Scoping Document to limit the scope of work. (See [Scoping Document Purpose](#))
3. Develop Experimental Spec changes. (See [Changing the Spec](#))

Building Consensus – The Players

- ❑ Champion
 - ❑ Individual that has a proposal to extend SMI-S
- ❑ Technical Work Group (TWG)
 - ❑ Group that reviews the Scoping Document & initial specification work
 - ❑ Group in which consensus is achieved
 - ❑ Example: Array changes would be worked out in the DRM TWG.
- ❑ Author
 - ❑ Individual that owns the profile to be added or changed

PARTICIPATION IN TWG MEETINGS IS IMPORTANT:

- ❑ To get **your** extensions into the standard
- ❑ To prevent other vendor extensions from inadvertently ruling out **your** device functions

Building Consensus – Considerations

Should you take your extension to SMI-S?

YES

- ❑ The extension will likely be done by another vendor.
 - ❑ You don't want to risk a re-design if another vendor brings the extension forward
- ❑ You want or need client application support.
- ❑ You want other vendors to follow your company's lead.
- ❑ The extension calls for industry agreement. (Time to Market)

NO

- ❑ The extension is truly unique to your vendor.
 - ❑ You can risk a re-design should another vendor bring the extension forward.
- ❑ You don't want or need client application support.
- ❑ You plan obsolescence of an extension that you support only for existing customers.

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Building Consensus – Scoping

- ❑ The purpose of a *scoping document* is to outline the desired changes in sufficient detail to eliminate “scope creep.”
 - ❑ A TWG will review and comment on the extension.
 - ❑ You need to protect yourself from “amendments” to your proposal that will make you “boil the ocean.”
- ❑ The TWG votes on accepting the defined scope of the work.
- ❑ Once a scoping document is approved, the scope of work is set.
- ❑ Writing a scoping document includes solicitation of other vendors that intend to implement the extension.
 - ❑ This ensures that affected parties participate in the design of the work.



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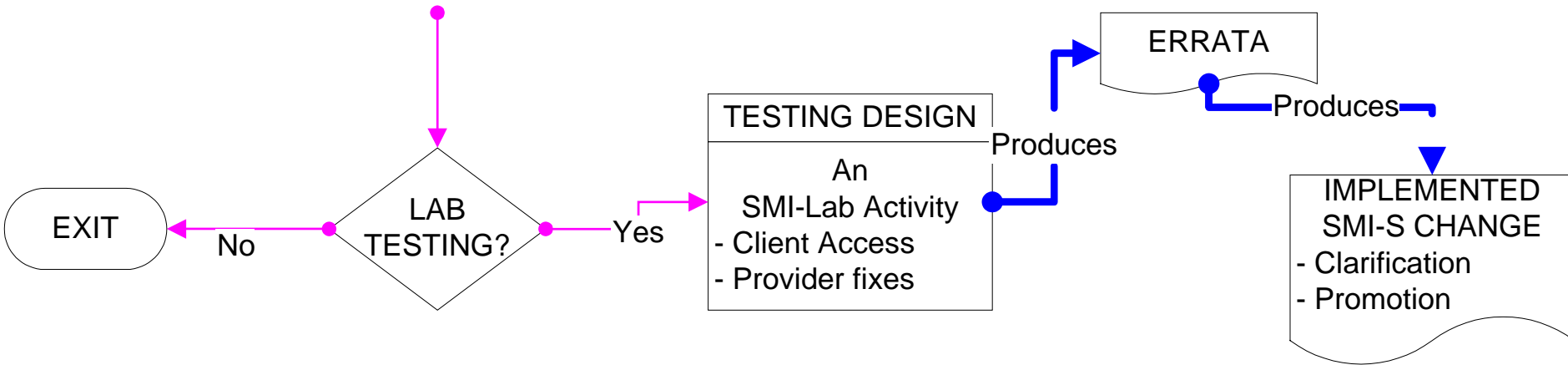
Building Consensus – Changing the Spec

- ❑ As soon as the scope of work is settled, the next step is to document the changes to the spec. Changes may involve:
 - ❑ FrameMaker text
 - ❑ Diagrams
 - ❑ Class tables (as documented in xml files)
- ❑ If the change is a new profile, the champion of the scoping document may become the owner of the profiles.
- ❑ If the change is an update to an existing profile, the champion will work with the author of the affected profile(s).
- ❑ Changes are voted into the specification by the TWG (and approved by the TSG).



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Testing a Proposal – SMI-Lab Program



- ❑ SMI-S does not stop with creation of the standard.
 - ❑ The next step is to verify the standard in a lab environment.
 - ❑ SMI-S material that is not verified stays Experimental in the standard.
- ❑ The SMI mechanism for this verification is the SMI-Lab Program.
- ❑ SMI-Lab brings Client applications and Provider vendors together to work out problems with the standard.

Testing a Proposal – SMI-Lab Players

- ❑ Client Application Vendors
 - ❑ Have VPN access to all providers in the lab to develop and debug support for various providers in the lab
 - ❑ Perform early “proof of concept” testing of new extensions
 - ❑ Are encouraged to go to Plugfests for direct interaction with provider vendors
 - ❑ Work out kinks in new extensions to the standard
- ❑ Provider Vendors
 - ❑ Are encouraged to put their latest providers in the lab to expose their functions to client application vendors
 - ❑ Obtain early versions of the CTP Tests for the SMI-S release under test
 - ❑ CTP Tests are developed for extensions in the latest release.
 - ❑ Expose new extensions to debugging

SMI-Lab 10 (2010) Members

- 3Par Data
- BMC
- Brocade
- Cisco
- Compellent
- EMC
- Fujitsu
- Hewlett-Packard
- Hitachi Data Systems
- IBM
- LSI Logic
- Microsoft
- NetApp
- Pillar Data
- PMC-Sierra
- Quest Software
- Solarwinds
- Symantec

Testing a Proposal – Plugfests

- ❑ SMI-Lab holds between four and six Plugfests per year.
 - ❑ To get client and provider vendors together to work out problems
 - ❑ To bring in infrastructure (CIMOM) vendors to work through any concerns with the infrastructure
 - ❑ To focus on particular parts of the standard (Topic Fests), such as indication processing, scalability testing or VWS-Management protocol testing
- ❑ Testing of SMI-S extensions in SMI-Lab is key to getting them **promoted** from Experimental to Final.

NOTE: An Experimental profile:

- ❑ Can change and break backward compatibility
- ❑ Can be removed from the standard (without deprecation)

Testing a Proposal – Participation

- ❑ Participation in SMI-Lab is critical.
 - ❑ To fix specification problems
 - ❑ To clarify ambiguities in the specification
 - ❑ To verify that client applications can handle variations between provider implementations
 - ❑ To ensure your company is “wired into” last minute errata and other fixes to the standard
- ❑ The more vendors that exercise the standard (and extensions to the standard), the more robust and useful the standard becomes.
- ❑ The SMI-Lab program is a fee-based program that requires annual renewal.

Testing a Proposal – Considerations

Should your company participate in SMI-Lab?

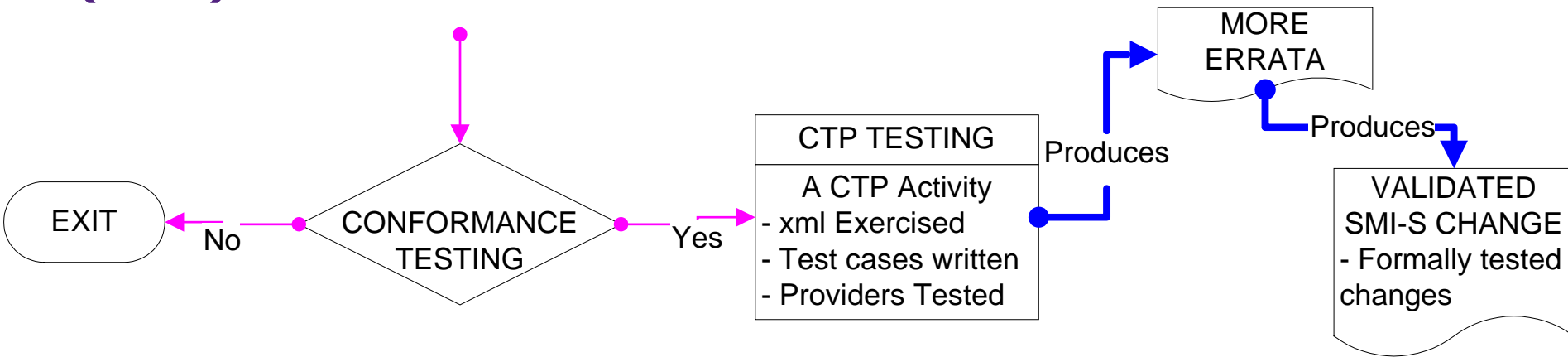
YES

- ❑ You want the extension promoted from Experimental.
- ❑ You want support from client applications.
 - ❑ Speed up development of new features of SMI-S
- ❑ You want CTP testing of the extension. (see [Validating Conformance](#))
- ❑ You want to speed up your development process.

NO

- ❑ Experimental is good enough.
 - ❑ No rush to get it promoted
- ❑ You don't need client support.
- ❑ You don't need CTP tests for the extension.

Validating Conformance – Conformance Test Program (CTP)



- ❑ The Conformance Test Program formalizes the informal testing of SMI-Lab to advertise conformant provider implementations.
- ❑ Testing minimally includes “model walking” but can also include “recipe test cases” to exercise specific functions.
- ❑ Testing generates more errata to fix the standard.
- ❑ Vendors that pass the CTP test can get listed on CTP web pages advertising their conformance.
 - ❑ Indicates which profiles and functions passed the conformance test

Validating Conformance – CTP Players

- ❑ The SMI Conformance Committee
 - ❑ Composed of representatives from member companies
 - ❑ Owns and writes the CTP Test Plans and Test Specifications
 - ❑ Approves the release of test suites
 - ❑ A Contractor
 - ❑ Develops and maintains the Test Harness
 - ❑ The CTP Program Manager
 - ❑ Administers the CTP program
 - ❑ Vendors willing to exercise the tests
 - ❑ Have their providers tested
- Note: If there is no vendor for a profile, no test is released for that profile.

Validating Conformance – What gets tested

- ❑ A CTP release DOES NOT test all of SMI-S.
 - ❑ Only profiles and functions supported by SMI-Lab members are considered.
 - ❑ SMI needs implementations to test the test suite.
 - ❑ This eliminates a great number of profiles from the Test Suites.
- ❑ If *multiple* SMI-Lab members test a profile, then that profile can be made an official part of the release of CTP.
- ❑ If only *one* SMI-Lab member tests a profile, then that profile can be listed as an **Early Adopter** profile for the release of CTP.
- ❑ If a Profile has a maturity of **Experimental** in SMI-S, then it can only be listed as an **Early Adopter** profile even though multiple vendors have tested with it in SMI-Lab.

Validating Conformance – Participation

- ❑ Participation in CTP is critical.
 - ❑ To get test cases released
 - ❑ No company is required to participate in SMI-Lab or CTP, but if no company is willing to exercise tests for a profile, that profile never appears in any CTP release.
 - ❑ To fix specification problems
 - ❑ To clarify ambiguities in the specification. These show up in testing.
 - ❑ To ensure your company is “wired into” last minute errata and other fixes to the standard
- ❑ CTP is a fee-based program.
 - ❑ If you belong to SMI-Lab, you may exercise test suites without a fee for unofficial results.
 - ❑ Listing official results on CTP web pages requires payment of a fee.

Validating Conformance – Considerations

Should your company participate in CTP?

YES

- ❑ Your company wants to ensure that other vendors have implemented the extension correctly.
- ❑ Your company wants CTP testing of the extension.
- ❑ Your company wants to be listed on the CTP web pages so that customers know you have implemented the extension.

NO

- ❑ Your company does not want to ensure that other vendors have implemented the extension correctly.
- ❑ Your company does not need or want CTP tests for the extension.
- ❑ Your company does not need or want to advertise implementation of the extension on CTP web pages.

- ❑ Vendor Extension Only
 - ❑ Builds on SMI-S to provide vendor-specific function
- ❑ SMI-S Experimental Material
 - ❑ Reviewed and blessed by architects, but implementations are either pending or limited
- ❑ SMI-S Implemented (or Stable) Extension
 - ❑ Exercised in SMI-Lab and verified to work as designed
- ❑ SMI-S Tested Extension (listed on CTP pages)
 - ❑ Completed formal testing via the Conformance Test Program

Ideally all of SMI-S would be tested, but this cannot happen without vendor participation.