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# **CAPE-OPEN Certification: Improve Robustness and Interoperability of CAPE-OPEN Implementations**

**2<sup>nd</sup> Proposal  
CO-LaN Management Board  
October 5<sup>th</sup>, 2017**

# Certification Mission

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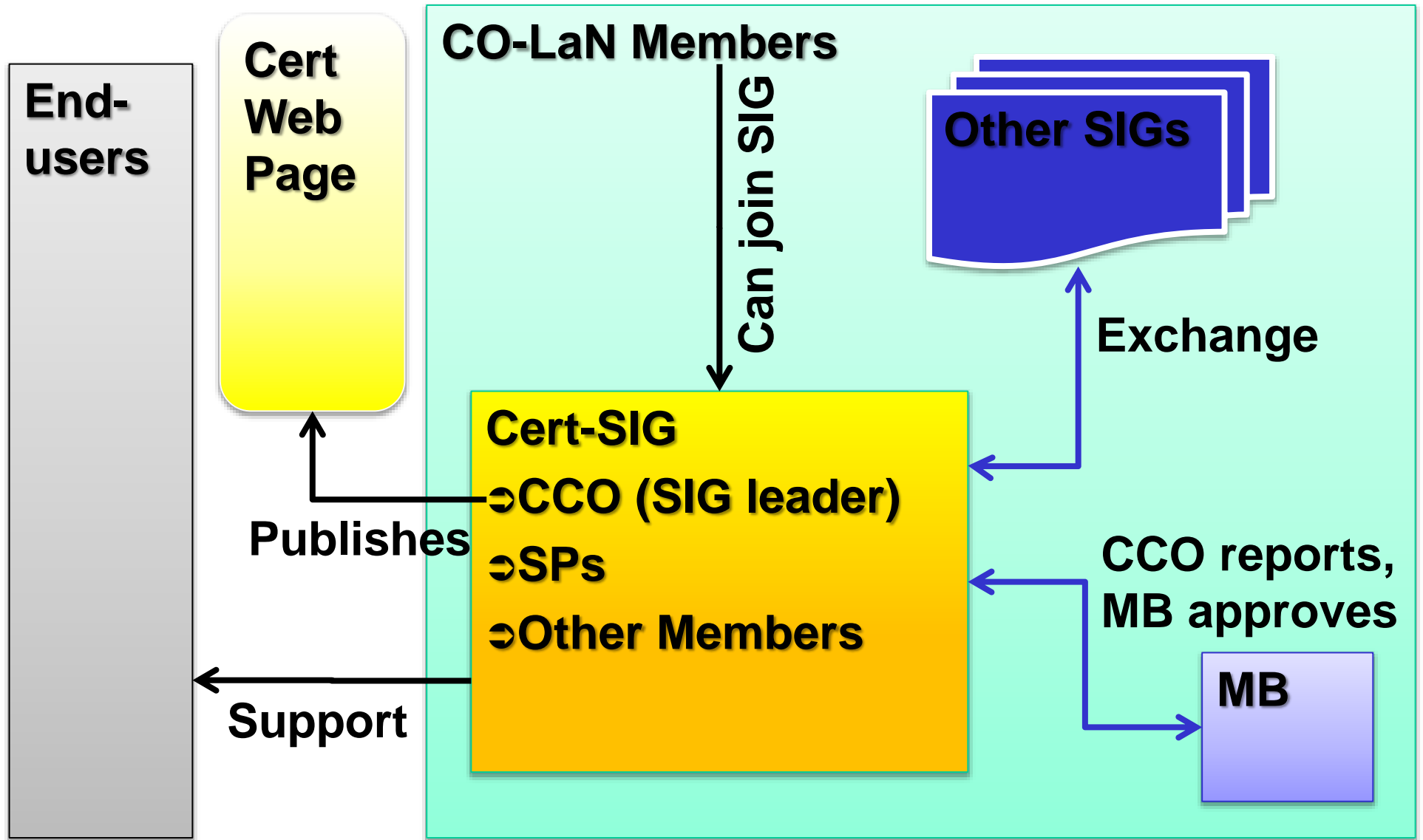
- **Improve interoperability and robustness of CAPE-OPEN implementations**
- **Advance unambiguous CAPE-OPEN standard**
- **Increase faith of CAPE-OPEN end-users in the practical applicability of CAPE-OPEN-based solutions**
- **Increase usage of CAPE-OPEN-based solutions in commercial engineering projects**
- **Minimize commercial risks for use of CAPE-OPEN-based solutions**

# Stakeholders

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- **Certification SIG (Cert-SIG)**
- **Chief Certification Officer (CCO)**
  - "independent" contractor
- **Software Producers (SPs)**
- **Management Board (MB)**
- **Other CO-LaN members**
- **End-users**

# Overview



# Cert-SIG Charter

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- **SIG members ...**
  - accept Cert-SIG charter
  - promote mission
  - supply test licenses to CCO
  - follow certification process
  - pay certification fee, if certification is requested
  - guarantee seamless CO support to end-users
  - accept to discuss issues within Cert-SIG
  - co-operate to resolve interop issues
  - develop and improve certification tests
  - may develop SIG charter
  - (incl. CCO) are not liable (beyond common laws)
- **Changes to Cert-SIG charter have to be approved by MB**

# Certification Workflow

## Registered Self-Tested Verified Approved

- SP joins Cert-SIG
- SP accepts SIG charter

- Product+CO ID "Registered"
- SP provides permanent test licenses to CCO
- CCO publishes status

- Product+CO ID "Self-Tested"
- SP executes self-test suite
- SP sends results to CCO
- CCO publishes status

- Product+CO ID "Self-Test Verified"
- SP pays small certification fee ("What costs nothing, is worth nothing.")
- CCO verifies self-test results
- MB approves successful self-test
- CCO publishes status

- Product+CO ID Combinations "Interoperability Approved"
- CCO runs interop test between available Product ID combinations
- CCO informs both SPs about results
- If successful interop test, CCO reports status to MB
- MB approves publication
- CCO publishes status
- If failed interop test, CCO analyses and mediates between SPs to fix issue
- No publication of status

# Attributes to specify interoperability

- **Company (Company  $\alpha$ , ...)**
- **Product identification**
  1. Product (Product A, Product B, ...)
  2. Product version (3.1, 3.2, ...)
  3. Build number (b12345, b2345, ...)
- **CO interface set identification**
  1. CO interface set (Thermo, UnitOp, ...)
  2. CO interface set version (1.0, 1.1, ...)
  3. CO interface set connector (plug, socket)

Product+CO ID

# Test Procedures

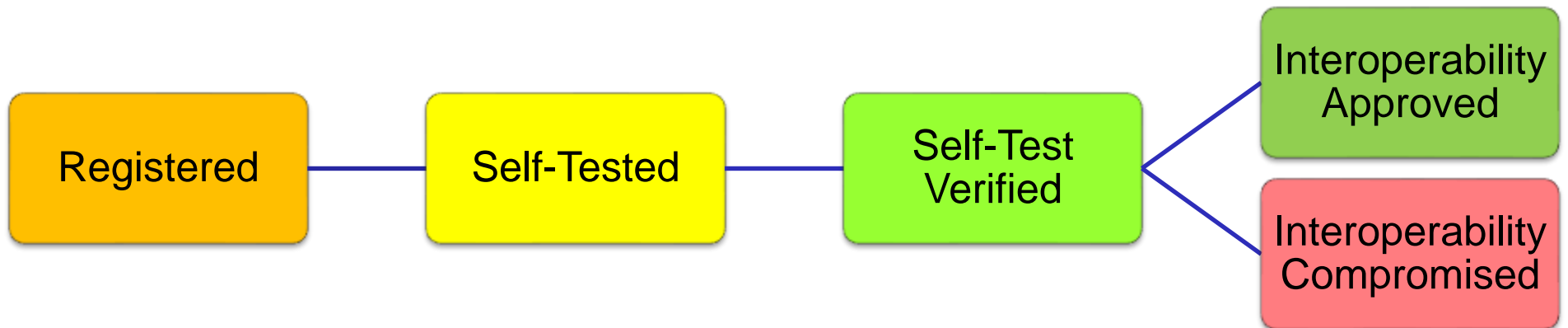
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- 1. Self-Test Suite per Product+CO ID**
  - Fully Automated
  - First version to be created before Cert-SIG
  - Publicly available
  - Maintenance and development by Cert-SIG
- 2. Interop Test Procedure per Product+CO ID**
  - As much automated as possible
  - Publicly available
  - First version to be created before or by Cert-SIG
  - Maintenance and development by Cert-SIG
- 3. Optional: Interop Developer Parties  
as additional tool to achieve quicker progress**
  - Face-to-face or web meetings
  - Framework conditions to be negotiated by Cert-SIG



# Publication of Interoperability Status

- **CCO publishes results in CO-LaN web page**
- **Extend of publication is negotiable (Cert-SIG charter):**
  - Details: # of issues, workaround, details, resolution, ...
  - Common bug database
- **Minimal publication:**
  - Certification status



# One Interop Matrix Per CO Interface Set

	SP	SP $\alpha$		SP $\delta$	
SP	Socket Plug	Product+CO ID W	Product+CO ID X	Product+CO ID Y	Product+CO ID Z
SP $\alpha$	Product+CO ID A	Self-Test Verified	Interop Approved	Interop Approved	Interop Approved
SP $\beta$	Product+CO ID B	Interop Approved	Self-Test Verified	Interop Approved	Interop Approved
	Product+CO ID C	Interop Approved	Interop Compr'sed	Self-Test Verified	Interop Approved
SP $\gamma$	Product+CO ID D	Not yet tested	Not yet tested	Not yet tested	Self-Tested

# Support Promise

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- **Support promise is part of Cert-SIG charter**
- **SP promises to guarantee certain level of support**
  1. Same attention to CO issues as to other issues
  2. Accepting CCO as mediator and "neutral ground" for analysis
  3. Co-operation with other SPs to fix interop CO issues
- **Withdrawal process is part of end-user support process**

# End-user Support Process

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- 1. End-user or other SP complains about limited interoperability**
- 2. CCO tries to verify complaint and to analyse problem**
- 3. CCO classifies criticality**
- 4. CCO contacts concerned SPs with found details**
- 5. Appropriate workarounds may lower criticality**
- 6. SPs gets defined timeframe to fix the issue**
- 7. CCO supports and mediates between all concerned parties**
- 8. If issue could be resolved, inform end-user**
- 9. If not, CCO starts withdrawal process**

# Withdrawal Process

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- **Withdrawal process applies only to certification status "Interoperability Approved"**
- **In case of abortive support process CCO changes certification status to "Interoperability Compromised" for concerned Product+CO ID combinations**
- **Certification status "Interoperability Approved" cannot be re-gained for a specific version, but for the next or patched version**
- **Recommended to publish more details to status "Interoperability Compromised" (workaround, fix, ...)**

# Next Steps

## Preparation

- **Staff CCO position**
- **Create self-test suite (CCO or consultancy)**
- **Design interop test procedure (CCO or consultancy)**
- **Set up Cert-SIG mission and first charter (CCO & MB)**

## Start-Up

- **SPs joining SIG**
- **Finalize Cert-SIG charter details: Certification workflow, test licences, publication, test procedures, withdrawal, ...**
- **Negotiate about certification badge**

## Operation

- **Execute certification process**
- **Grant certificates**
- **Develop self-test suite & interop test procedure**
- **Resolve interop issues**

# Discussion

**Pros**

**Cons**

**Opinions?**

**Suggestions?**

**Questions?**

**Concerns?**

**Comments?**

**Commitment**

*Commitment and credibility  
go hand in hand.*

*Zbigniew Brzezinski  
American Politician  
1928 - 2017*



*Minds are like parachutes,  
they only function when open.*

*Thomas Dewar*

*Scottish Businessman*

*1864 - 1930*