

CO-LaN Activities Report 2014/2015

**CAPE-OPEN 2015 Annual Meeting
Shell Technology Centre Amsterdam,
October 14, 2015**

CO-LaN Activities Report 2014/2015

- ◆ **CO-LaN Overview**
 - ⇒ **Current Members**
 - ⇒ **Management Board**
 - ⇒ **Contracts and Software Licences**
 - ⇒ **CO-LaN Renewal**
- ◆ **2014 Futures Session**
 - ⇒ **Dissemination**
 - ⇒ **Self-certification proposal**
- ◆ **CO-LaN tools**
- ◆ **Special Interest Groups: overview and reports**
- ◆ **Consultancy Service Scheme**
- ◆ **Training**

CO-LaN Overview – Membership

- ◆ **As of October 2015 almost one hundred Members**
 - ⇒ **6 Full Members**
 - ⇒ **48 Suppliers**
 - ⇒ **25 Academics**
 - ⇒ **3 Public & Federal Agencies**
 - ⇒ **17 Individuals**

- ◆ **Linde AG joining as Full Member as of January 1, 2016**
 - ⇒ **See next presentation**

- ◆ **Small increase in individual Associate Members since last year**

CO-LaN Overview - Management Board

- ◆ **Responsible for day to day running of CO-LaN**
- ◆ **Composed only of representatives of Full Members**
- ◆ **Management Board (current)**
 - ⇒ BP Malcolm Woodman President
 - ⇒ Total Francis Luck Treasurer
 - ⇒ Shell Global Solutions Richard Baur Secretary
 - ⇒ Air Liquide Philippe Arpentinier
 - ⇒ BASF Peter Mauer
 - ⇒ Dow Isaiah Huang
- ◆ **Monthly conference calls, plus twice yearly physical meetings**

CO-LaN Overview - Contracts & Licenses

◆ On-going contracts awarded by CO-LaN

⇒ Michel Pons Technologie

- CTO activities

⇒ Michael Halloran

- COLTT development & other CO-LaN software

⇒ Stenhouse Simulations Ltd

- Secretarial support

◆ Licenses

⇒ All major vendors have continued to provide licenses to CO-LaN

- For testing & demonstration purposes
- Any defects found in packages are kept confidential to the vendor, the CO-LaN contractors and the Management Board

CO-LaN Overview - Renewal

- ◆ **Current five year period ends on December 31, 2015**
 - ⇒ **Management Board committed to pursue CO-LaN**
 - ⇒ **Extraordinary General Meeting to be called in December to formally extend duration of CO-LaN**

2014 Futures Session - Dissemination

◆ New CO-LaN Website

- ⇒ Developed by 3rd party web-design agency
- ⇒ Content Management System
- ⇒ Demo later this morning

◆ Web conferencing and web seminars

- ⇒ CO-LaN has a license with Webex used for Management Board and most SIGs conference calls. No use for wider dissemination.

2014 Futures Session - Dissemination

◆ Papers in Technical journals

⇒ Published work focusing on CAPE-OPEN

- “A molecular reconstruction feed characterization and CAPE-OPEN implementation strategy to develop a tool for modeling HDT reactors for light petroleum cuts” by C. Pernalete, J. van Baten, Juan C. Urbina, José F. Arevalo, PSE 2015/ ESCAPE 25, May 31, June 4, 2015.
- “Implementation of membrane models on a CAPE-OPEN tool to simulate a process including RO membranes” by José M. Gozávez-Zafrilla, Asunción Santafé-Moros, Miguel Sanchis-Sebastiá & Joaquín Gomis-Fons in Desalination and Water Treatment, published Dec 22, 2014, 54(13), pp. 1-7.

2014 Futures Session - Dissemination

◆ Forum

⇒ In active use for support queries

- Number of users: 114
- Number of topics: 222
- Number of posts: > 1200
- One post per day

⇒ Targeted mostly at developers

2014 Futures Session – Self Certification Proposal

- ◆ **Software Vendors given opportunity to self-certify**
 - ⇒ A simple statement of specification compliance
- ◆ **CO-LaN Website will report certification status for**
 - ⇒ Environments
 - ⇒ Components
- ◆ **To assist with compliance testing, CO-LaN documented interoperability Use Cases and Scenarios will be made available on website**
- ◆ **CO-LaN specialist services available to assist with certification testing (interoperability)**
- ◆ **Certification status would be revoked if:**
 - ⇒ Interoperability problems are identified and remain unresolved after an agreed period

CO-LaN Tools

- ⇒ **COLTT 2.3 available for download**
 - Solves problem reported by HTRI
 - Upgraded to Visual Studio 2013
 - Improvements to Viewer
- ⇒ **Installer for COM Type libraries and .NET Primary Interoperability Assemblies: October 2015 version available**
 - Still need code certificate
- ⇒ **Other software tools (Testers & wizards)**
 - Still in use as demonstrated by support requests
 - No progress made in identifying a strategy for maintenance due to lack of resources and no specific demands for updates

Overview - SIGs

- ◆ **Responsible for maintenance, development and approval process of CAPE-OPEN interface standards**
- ◆ **Representatives of both Full and Associate Members**
 - ⇒ **Thermodynamics**
 - Sergej Blagov (BASF), Jasper van Baten (AmsterCHEM)
 - ⇒ **Unit**
 - Krishna Murthy PENUKONDA (Schneider Electric)
 - Includes Refinery Reactors
 - ⇒ **Methods & Tools**
 - Bill Barrett (USA EPA)
 - ⇒ **Interoperability Support & CO-LaN Tools**
 - Co-ordinated by CTO & Malcolm Woodman
 - ⇒ **Hydrodynamics on hold due to lack of industry demand**

SIG Reports

- ◆ **Thermo SIG (see report made by Sergej BLAGOV)**
 - ⇒ **Chemical Reaction specification redesign**
 - Both apparent and true approaches now included
 - Custom data interface specification developed

- ◆ **UNIT SIG (see report to be made by Krishna Murthy PENUKONDA)**
 - ⇒ **Errata and Clarifications document on UNIT specification**
 - Approval process initiated, feedback obtained from members
 - ⇒ **Petroleum Fractions**
 - Implementation in SimSci and Shell
 - Specification needs further clarification particularly with respect to terminology
 - Feedback received from PDVSA Intevep
 - Need to work with Thermo SIG for thermo requirements (lower priority)
 - ⇒ **Dynamic Sequential Modular Unit interface specification**
 - No progress since last year because competing demand on UNIT SIG members

SIG Reports

- ◆ **Methods & Tools SIG (see report made by Jasper van BATEN)**
 - ⇒ **Common interfaces**
 - Systematic documentation of Errata and Clarifications
 - ⇒ **Flowsheet Monitoring**
 - Modifications brought to the original design
 - ⇒ **CAPE-OPEN Object Model**
 - Prototype needs to demonstrate interoperability along with COM-based implementations
 - Steps and actions defined and submitted to Management Board for possible funding

- ◆ **All SIGs are delivering technical progress**
 - ⇒ **Very regular conference calls (weekly for Thermo, monthly for UNIT, three times/month for M&T)**

Consultancy Service Scheme

- ◆ **Consultancy action (2014) finalized on ChemSep PP**
 - ⇒ Outcome reported by Harry Kooijman
- ◆ **Consultancy (2014) for Vortech: Modelica**
 - ⇒ Progress has been small
- ◆ **Contracts awarded in 2015 to:**
 - ⇒ **VMG**
 - Implementation of Unit Operation Interface 1.0
 - Work completed August 2015
 - VMGSim is now a CAPE-OPEN compliant environment
 - ⇒ **Aspentech**
 - Upgrading Aspen Properties Interface from Thermo 1.0 to 1.1
 - Scope of CO-LaN services still to be defined

Training

- ◆ **Training course organized for RENESENG project**
 - ⇒ **Provided by AmsterCHEM**
 - ⇒ **Undisclosed number of participants**

- ◆ **“CAPE-OPEN for end-users”**
 - ⇒ **Mörfelden, 9th September 2014**
 - ⇒ **Led by Jasper van Baten**
 - ⇒ **9 participants**

Conclusions & Perspectives

- ◆ **SIGs have done a significant amount of work over the year**
- ◆ **Feedback from 2014 Annual Meeting, Futures session, continues to be taken on board**
 - ⇒ **Further feedback sought at this meeting**
- ◆ **Consultancy scheme in progress**
 - ⇒ **Three consultancy works successfully performed**
- ◆ **Planning on extending CAPE-OPEN interfaces**
 - ⇒ **Equation-oriented unit operations prototyped at BASF**
 - ⇒ **Additional resources will be required for specification development, review and interface implementation**
- ◆ **New CO-LaN website to go live by end 2015**

Comments, Questions?

Vote on status report for 2014/2015

The General Members' Meeting, pursuant to the quorum and majority requirements applicable to ordinary members' meetings and after reviewing the President's report, approves the CO-LaN status report as presented for the period September 2014 – September 2015.