

UCTE – CIM converters

« helping the migration process »

Eric Lambert - EDF R&D - CIM UG 2009 - Genval – Belgium

OVERVIEW

- Background
 - ... when anticipation can be useful
- What we had (technical description)
 - ... before UCTE decision to go officially to CIM
- What we have now
 - ... after CIM-UCTE IOP tests
- Supporting the migration process
- Conclusion

Background (1/3)

- Study in 2005 :
specification of UCTE DEF (**v1**) to CIM-CPSM (**CIM10**)
a ucte cim-cpsm file provided to EPRI interop tests
conducted in 2005 : ucte14_i3e.xml

Areva, PTI, Siemens, Sisco, EDF imported/exported
successfully this file.

Background (2/3) – EPRI IOP 7 Tests results

Table 3-2
Basic Import Test of Individual Products

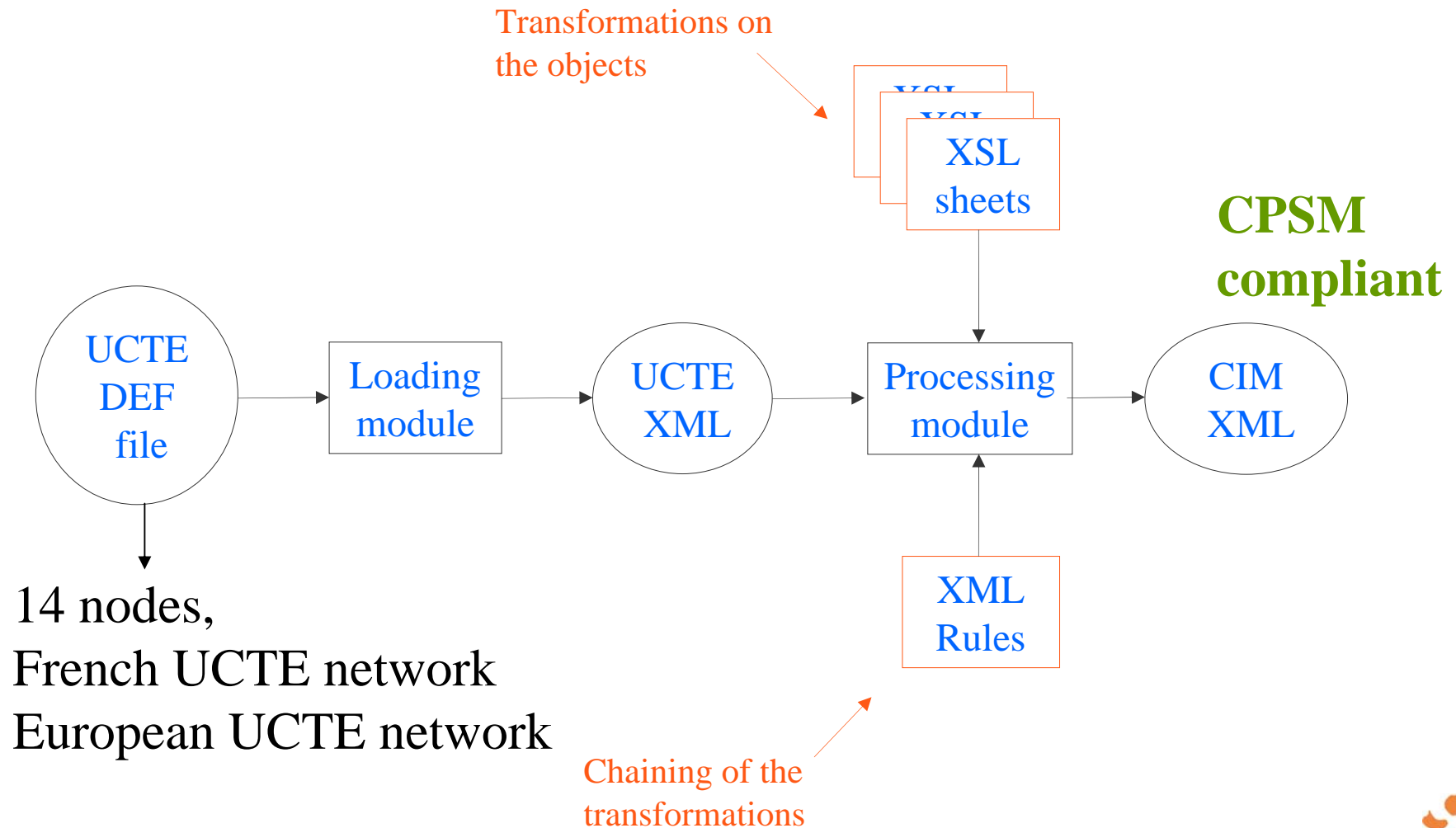
Test Procedure	4.2.1 Basic Import					
Test Model Used	100 Bus Model	60 Bus Model	40 Bus Model	27 Node Model	UCTE 14 Node	EDF7 3TW Model
Areva	P		P	P	P	
EDF CIM Framework	P		P	P	P	
EDF GEDEON	P		P	P	P	P
Siemens PTI	P	P	P	P	P	P
Siemens	P	P	P	P	P	P
SISCO UIB Store	P		P	P	P	

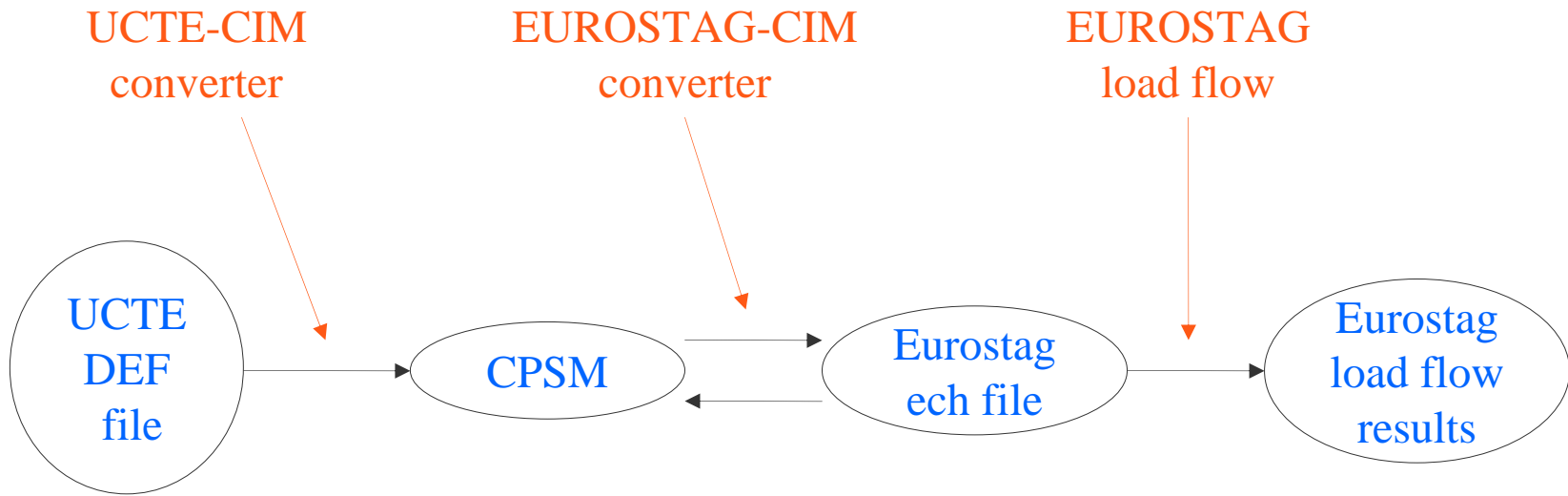
Background (3/3)

- EDF Study in **2006** :
specification of CIM-CPSM to UCTE DEF v1
- Translation of the specification in english and
delivery to CIM user group, as an open specification (**2007**)
- In May 2007 **UCTE DEF v2** ...

What we had - Technical description : UCTE DEF → CIM CPSM Converter (XSL)

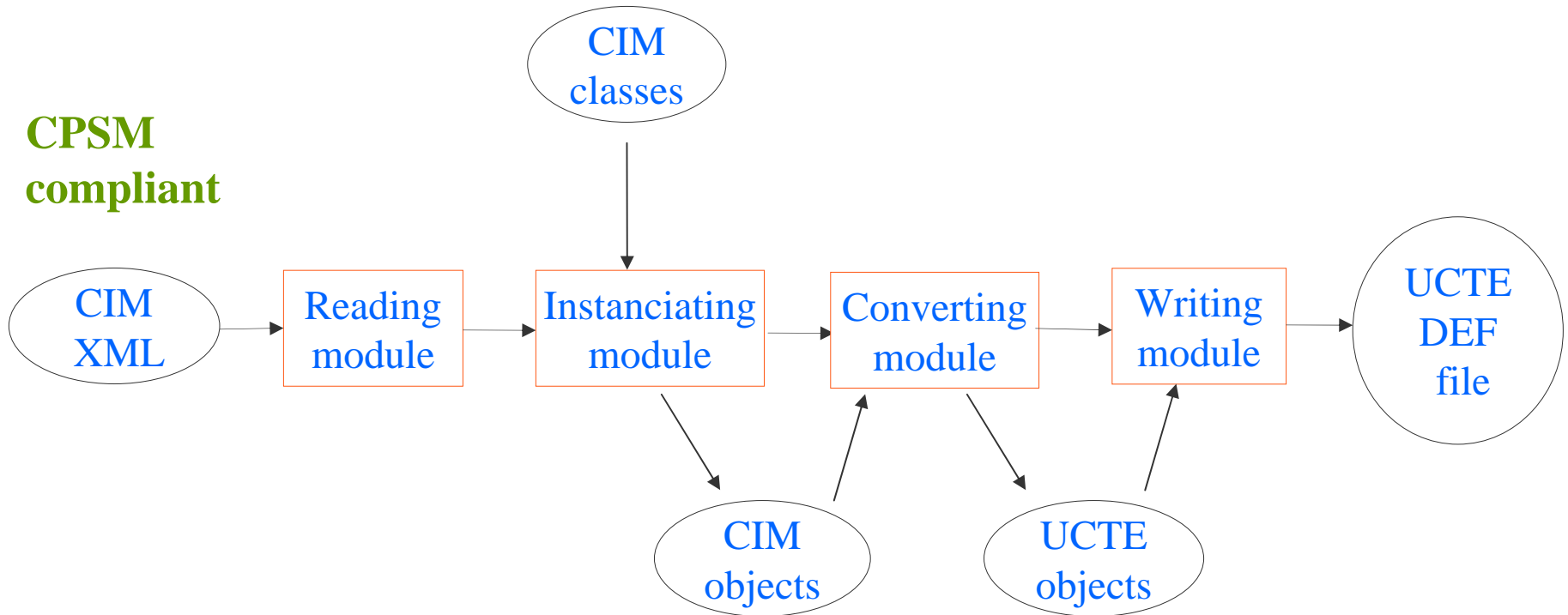
1/3





Eurostag : software used to study the transient stability of a transmission network. It includes a load flow calculation.

**CPSM
compliant**



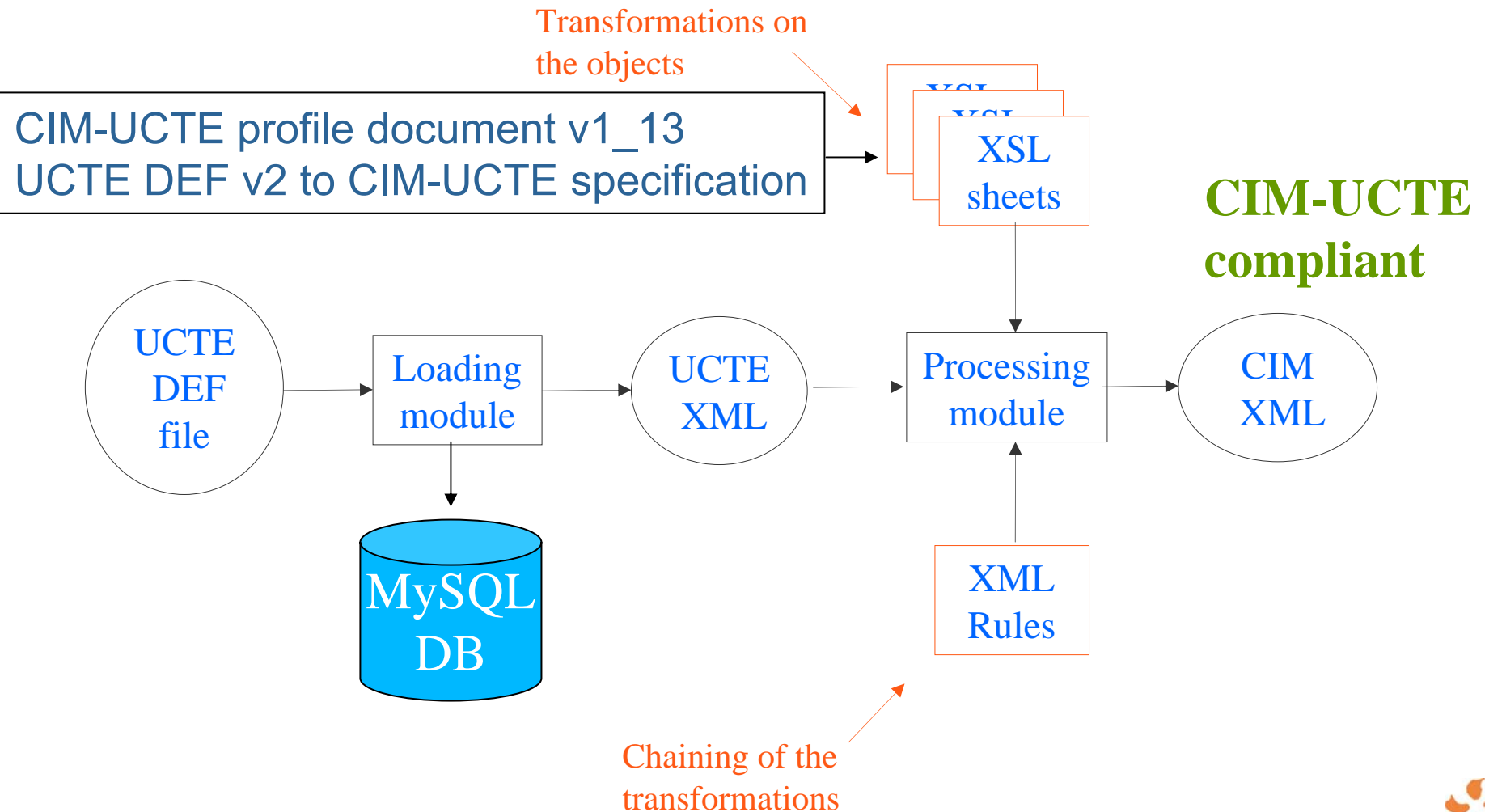
Towards UCTE DEF to CIM-UCTE converters

- UCTE DEF v2
- CIM version 14v02 (CIM v13 + Planning + UCTE requirements)
- Spreadsheet mapping between UCTE-DEF V2 and CIM 14v02
- CIM-UCTE profile document v1_13
- CIM-UCTE profile v1.13 under CIMTOOL
- Official UCTE DEF tests files (21 nodes, 10 nodes, 9200 nodes)
- EDF UCTE-DEF v1 to CIM-CPSM specification (CIM v10)
 - modified in order to get it a UCTE-DEF v2 to CIM-UCTE
 - Modification of UCTEDEF-To-CIMUCTE and CIMUCTE-To-UCTEDEF converters

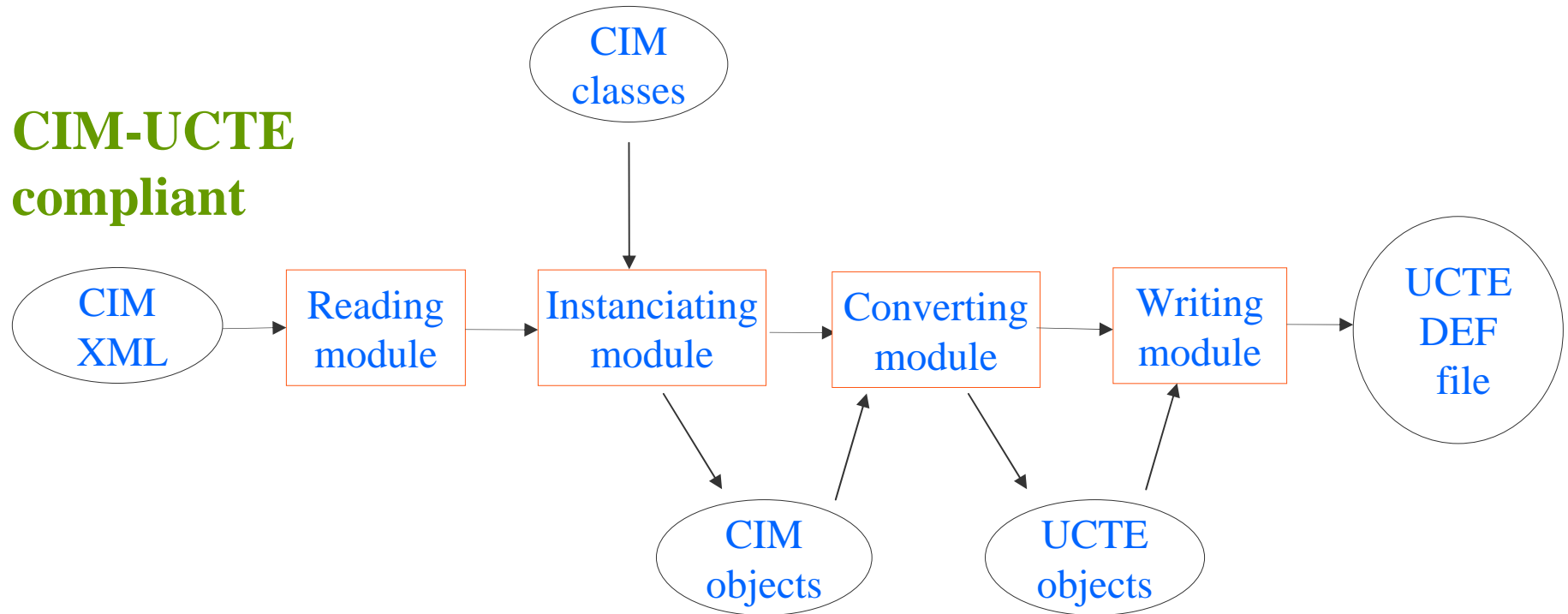
What we have – Technical description

UCTE DEF → CIM UCTE converter (XSL)

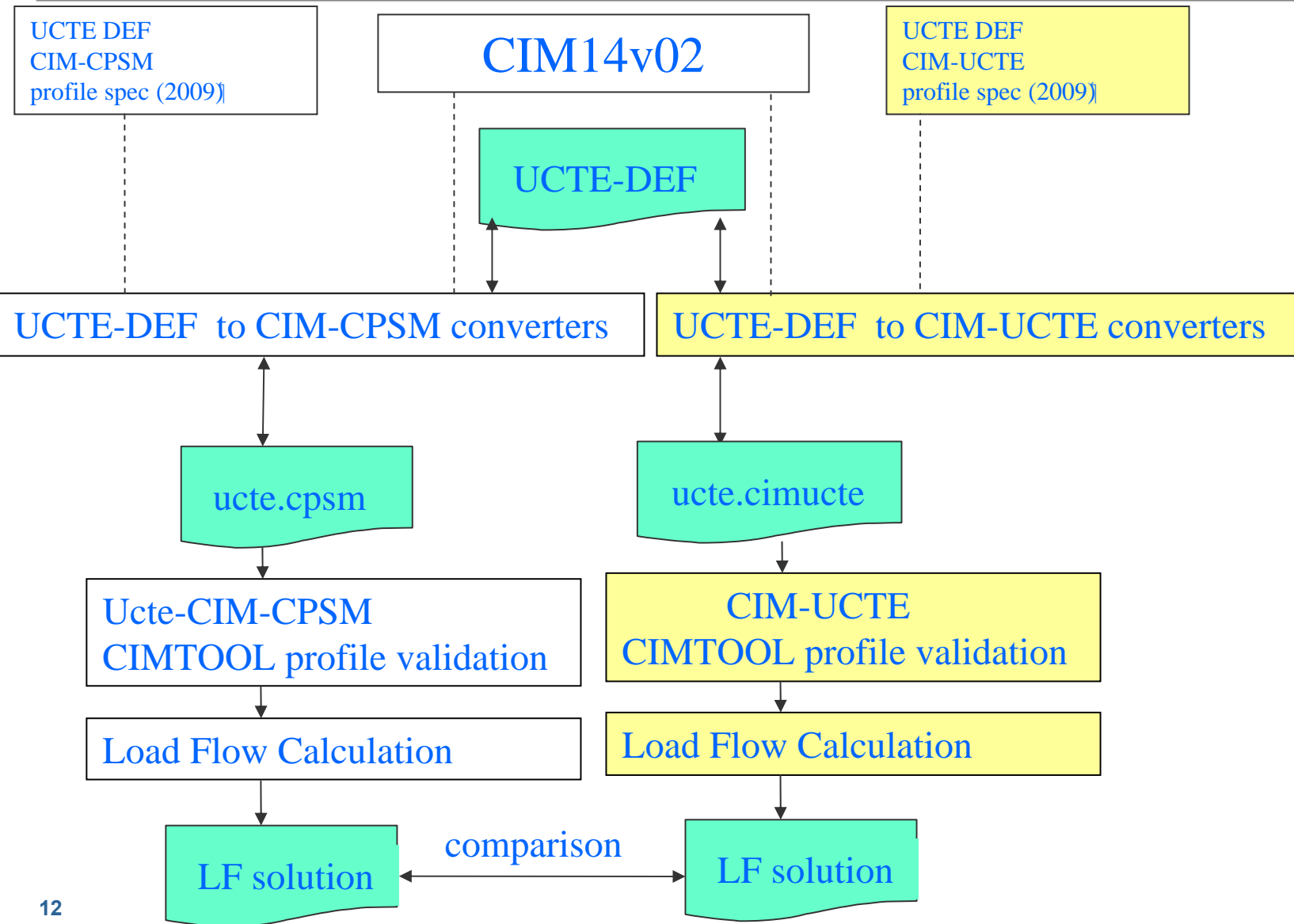
1/2

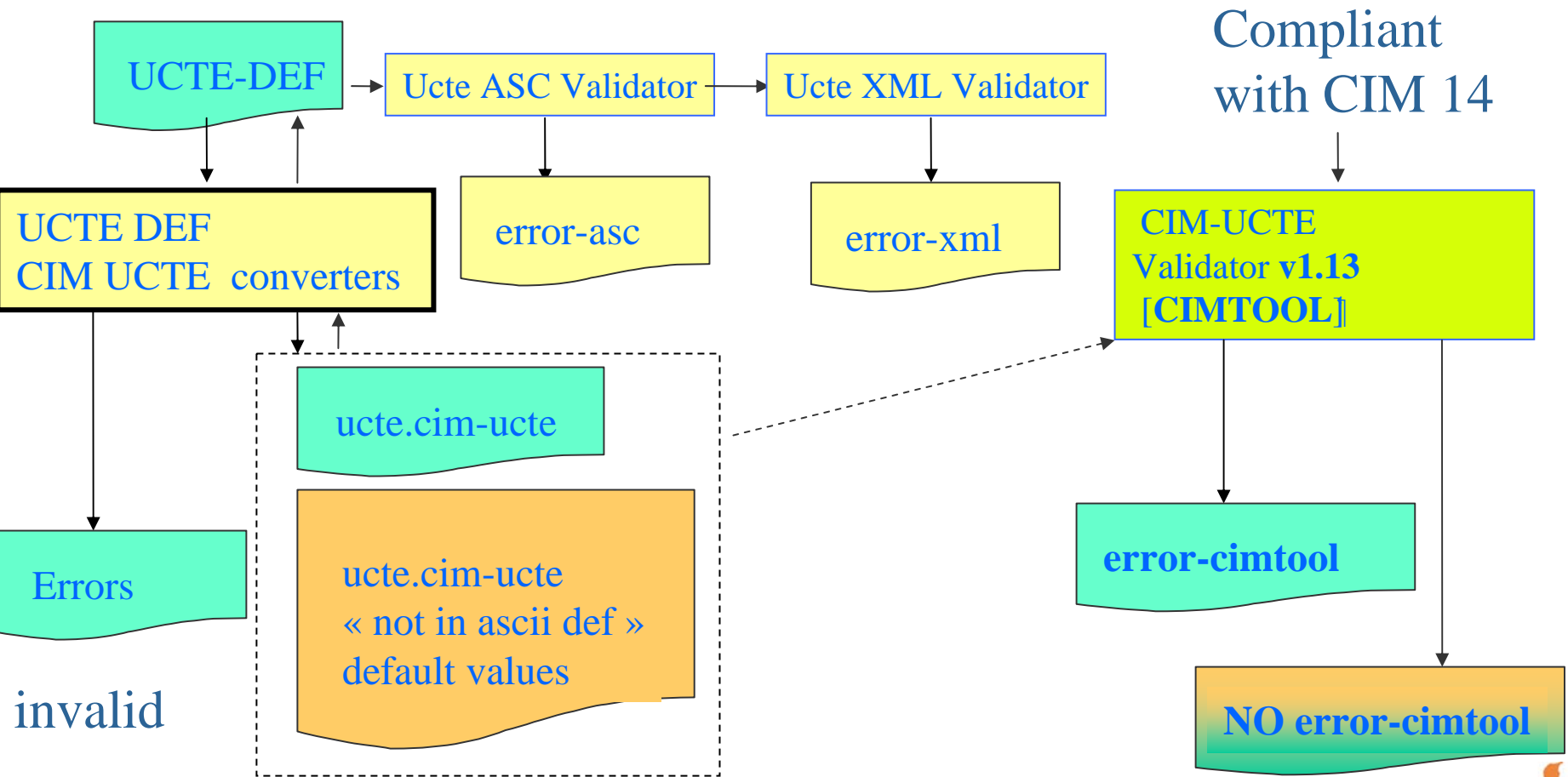


**CIM-UCTE
compliant**

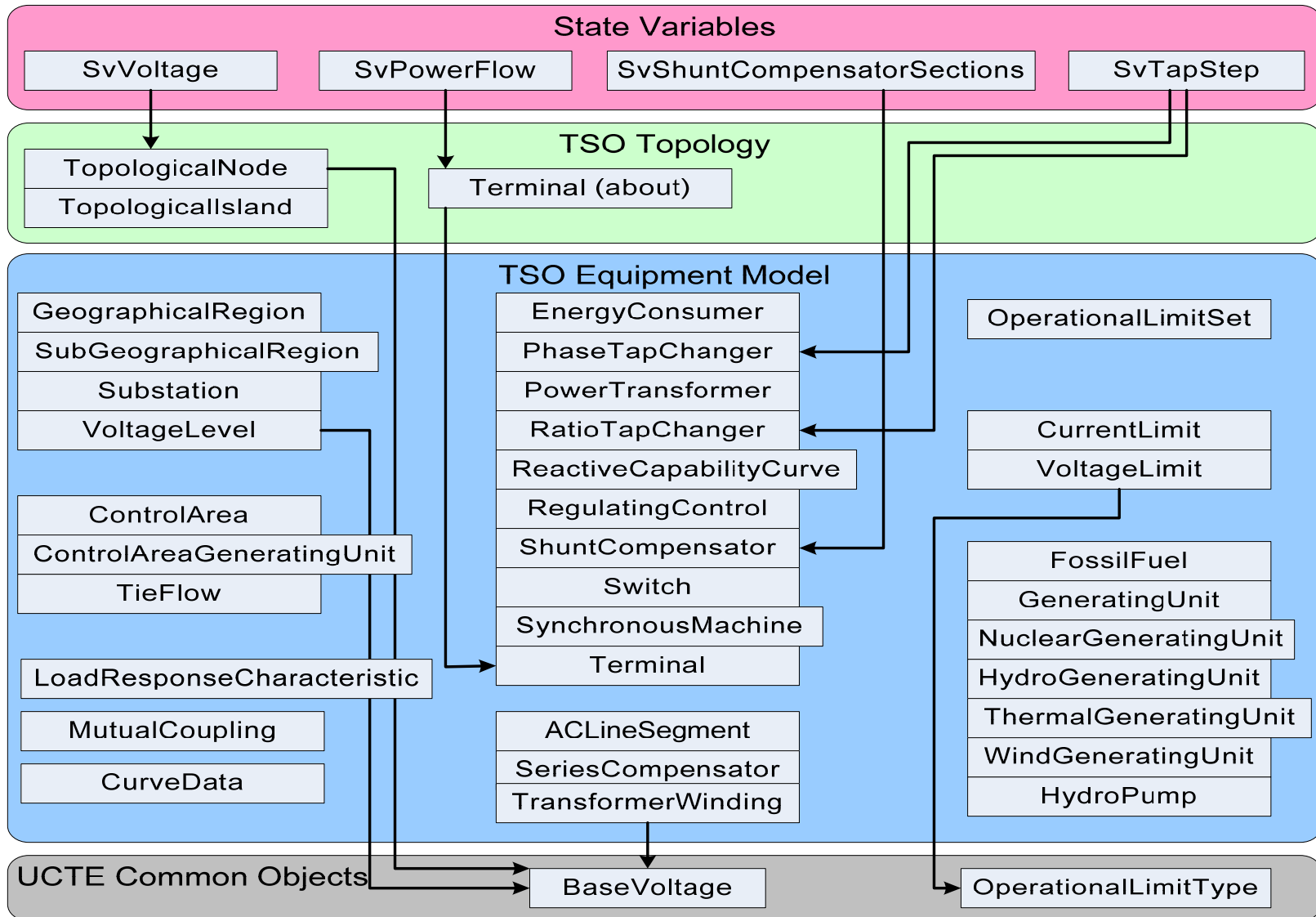


What we have now ...

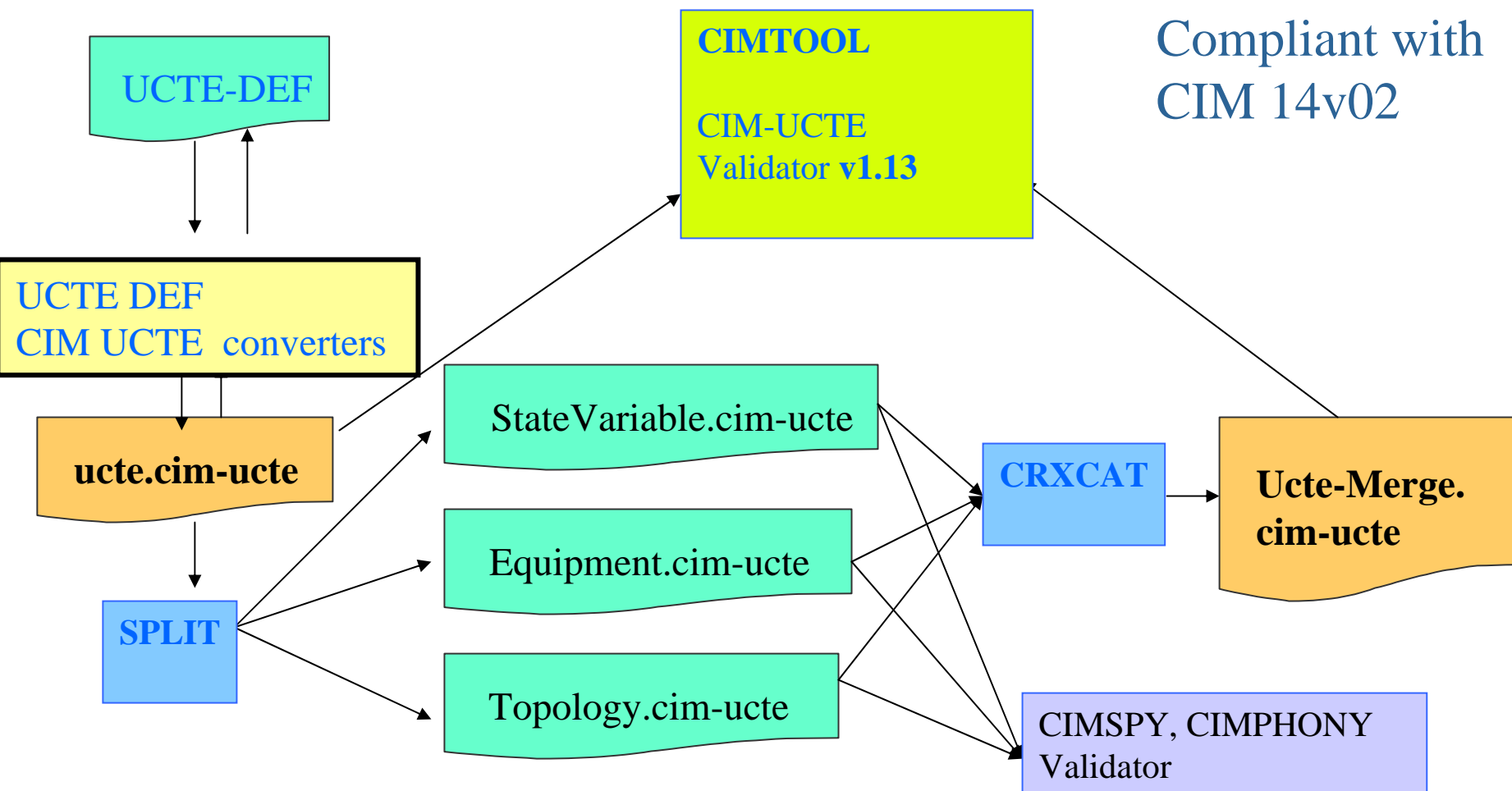




CIM UCTE profile

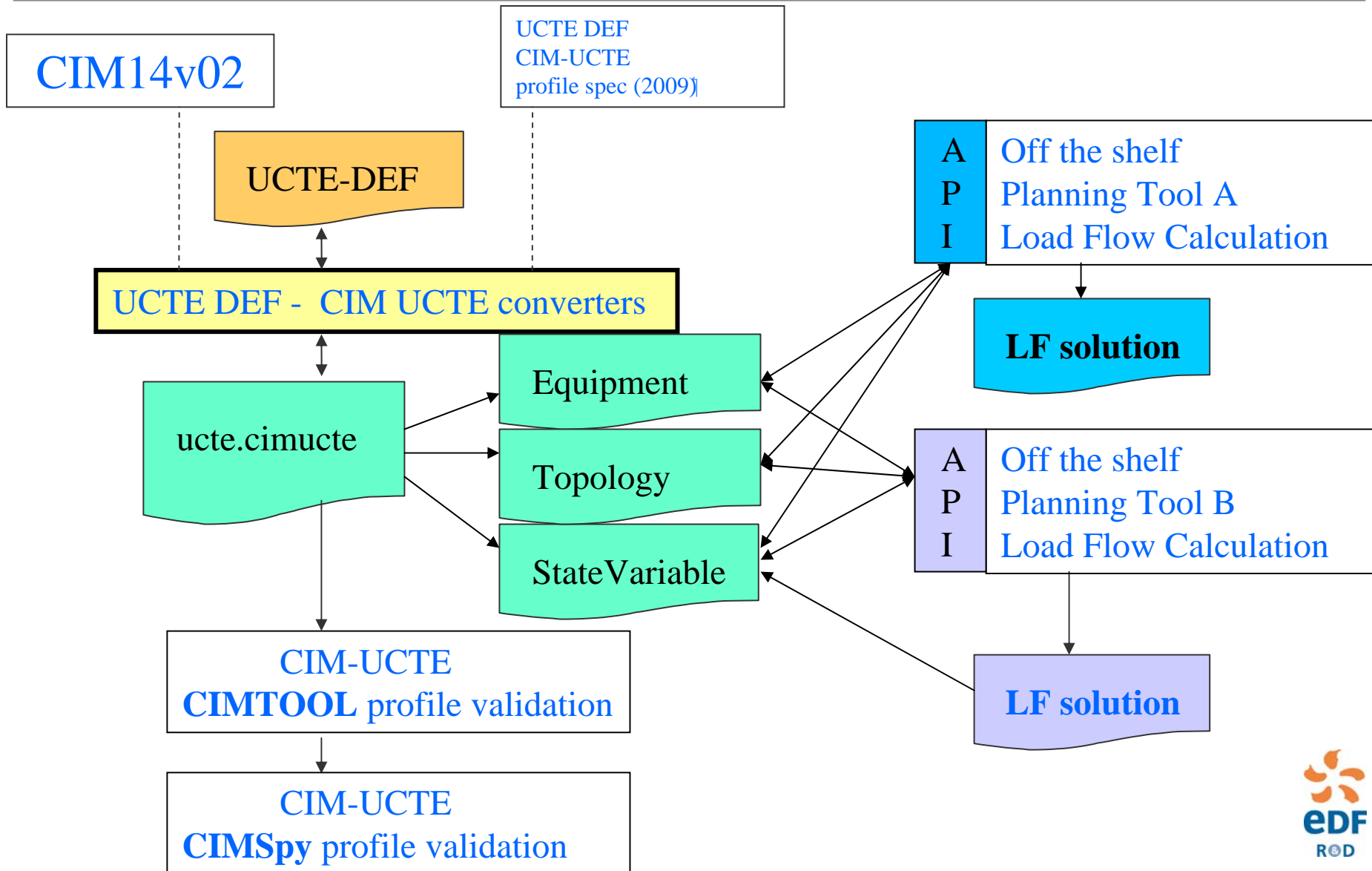


Converters and full validation process using CIM Open Tools



Use of EDF R&D Converters during IOP tests

UCTE DEF files 21 Nodes, 10 Nodes, 9200 Nodes



Converters & validation tools on a Server

LABORATOIRE DIGITAL PORTAILV1 - Microsoft Internet Explorer

Fichier Edition Affichage Favoris Outils ?

Adresse <http://www.t-digital.org/>

Google 8 Rechercher Mes favoris Trouver Orthographe Traduire Saisie automatique Connexion

Recherche et Développement

Recherche Annuaire Portails

Laboratoire DIGI²TAL contact: eric.lambert@edf.fr

NETWORKS [NETWORKS](#)

CIM for EUROSTAG V14

- [ECH vers CIM-CPSM](#)
- [CIM-CPSM vers ECH](#)

CIM for UCTE V14

- [UCTE-DEF vers CIM-CPSM](#)
- [UCTE-DEF vers CIM-UCTE](#)
- [CIM-UCTE vers UCTE-DEF](#)

<http://www.t-digital.org> - Site du Laboratoire DIGI²TAL - Microsoft Internet Explorer

Recherche et Développement

Recherche Annuaire Portails

Sélection de réseaux -> Entrepot de réseaux 06/05/2009

EDF networks

Reseaux Tests

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	UCTE21U_DEF_r1	ucte
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	UCTE92U_DEF_r1	ucte

Ma sélection de réseaux

Nom du réseau	cimucte	cpsm	ech	txt	ucte
<input checked="" type="checkbox"/> UCTE21U_DEF_r1	Conv ...	Conv ...	*	*	ucte
<input checked="" type="checkbox"/> UCTE92U_DEF_r1	Conv ...	Conv ...	*	*	ucte

Performances

1. UCTE-DEF To CIM-UCTE

	HP - 585 Mhz RAM 1.0 Go, 1400 MHz Intel Pentium5 ®	DELL - 1.66 Ghz RAM 2.0 Go, 1.66 Ghz Intel ® Core ™ 2 CPU
UCTE21U_DEF_r1.ucte	26.23 s	1.6s
UCTE92U_DEF_r1.ucte	885.22s	292s

2. CIM-UCTE To UCTE-DEF

	585 Mhz RAM 1.0 Go, 1400 MHz Intel Pentium5 ®	1.66 Ghz RAM 2.0 Go, 1.66 Ghz Intel ® Core ™ 2 CPU
UCTE21U_DEF_r1.ucte	5.85s	1.95s
UCTE92U_DEF_r1.ucte	191s	142s

Supporting the migration process (1/2)

- Contract between UCTE and EDF R&D in 2009, 2010 to maintain converters : on-going process
- Converters will be free of charge for users
 - Access to standalone versions
 - UCTE will provide the converters on a server
- Converters have been delivered for testing to UCTE
- If a problem occurs, or a question is asked, UCTE will manage it and will forward what is necessary to EDF R&D

Supporting the migration process (2/2)

- What could be foreseen as improvements :
 - UCTEDEF-To-CIMUCTE converter in Java (no more MySQL DB)
 - Facilitate installation, improve performances
 - Improvement of CIMUCTE-To-UCTEDEF converter
 - Improve performances
 - Converters as Web-Services
 - English User Interface

Conclusion

- Anticipation was a key issue for EDF R&D
 - CIM semantic could be used for UCTE
 - Proved during EPRI IOP tests in 2004,2005, 2006 with CPSM profile
- A good specification and good tools were existing
 - Adaptation and reusability was possible
- As always, it has been a « Success » because good teams were involved
 - At EPRI level and CIM User group level
 - At IEC level (WG13 experts, CIM Model Manager)
 - At UCTE level (UCTE experts, TSO representatives)
 - Vendors involvement with products and some open tools (CIMTOOL, CIMSpy, CIMPHONY)
 - At EDF R&D level and & EDF Group level (RTE)