



AMHS Implementation

by Uwe Kurpat, COMSOFT AFTN/AMHS Product Manager

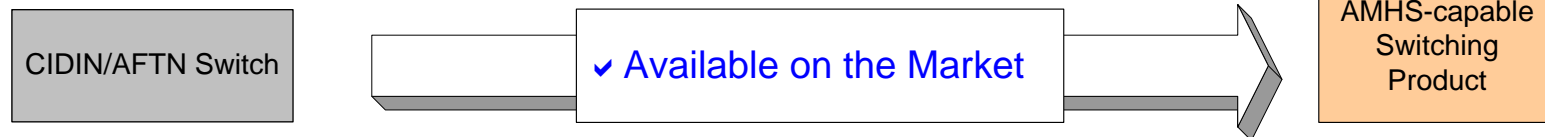
AHMS – Transition in the Asia/Pacific Region

COMSOFT AFTN/AMHS Switch AIDA-NG

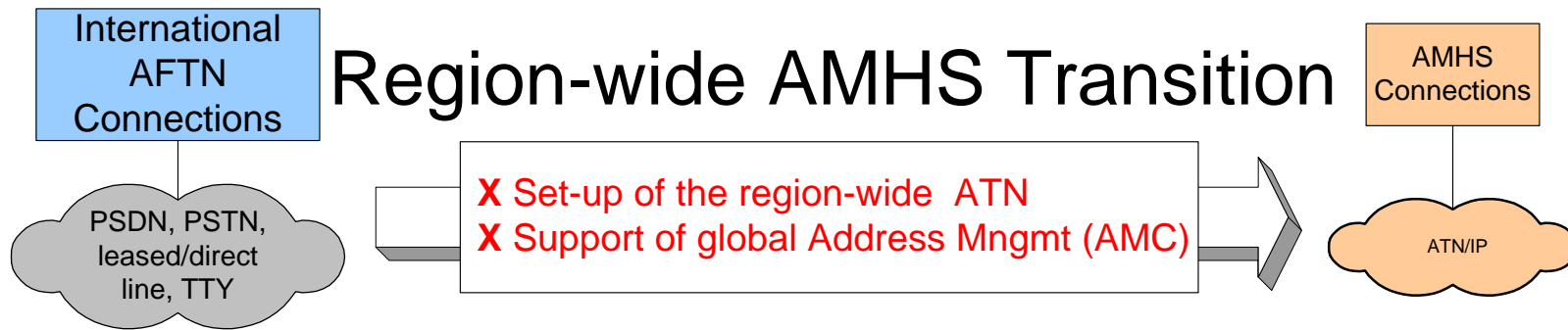
COMSOFT
is making the link

AMHS Transition – The main Issues of an ANSP

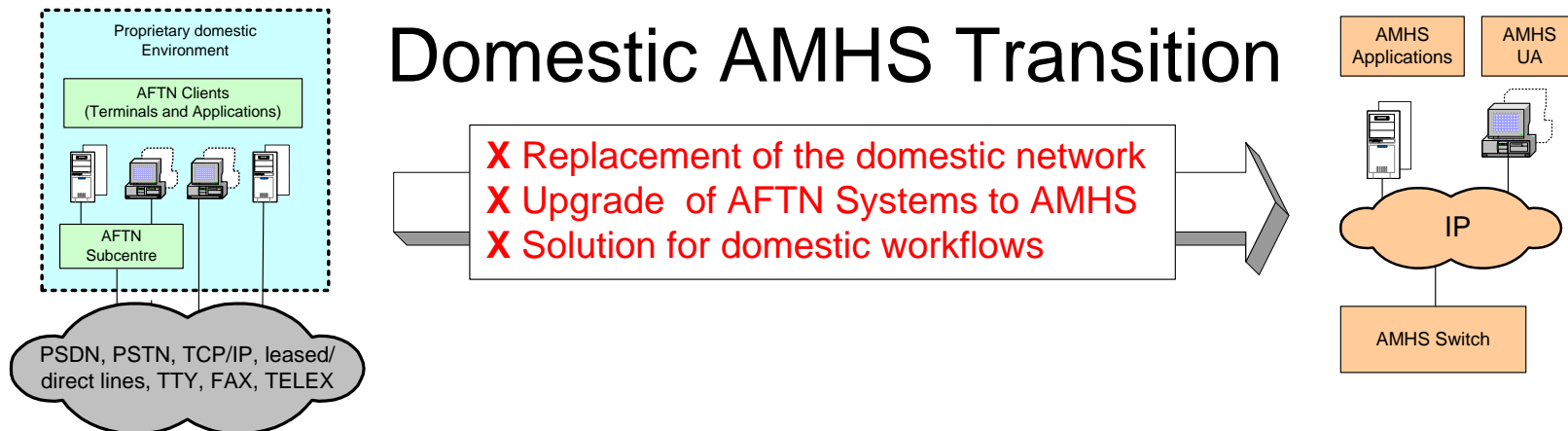
The Initial Step



Region-wide AMHS Transition



Domestic AMHS Transition

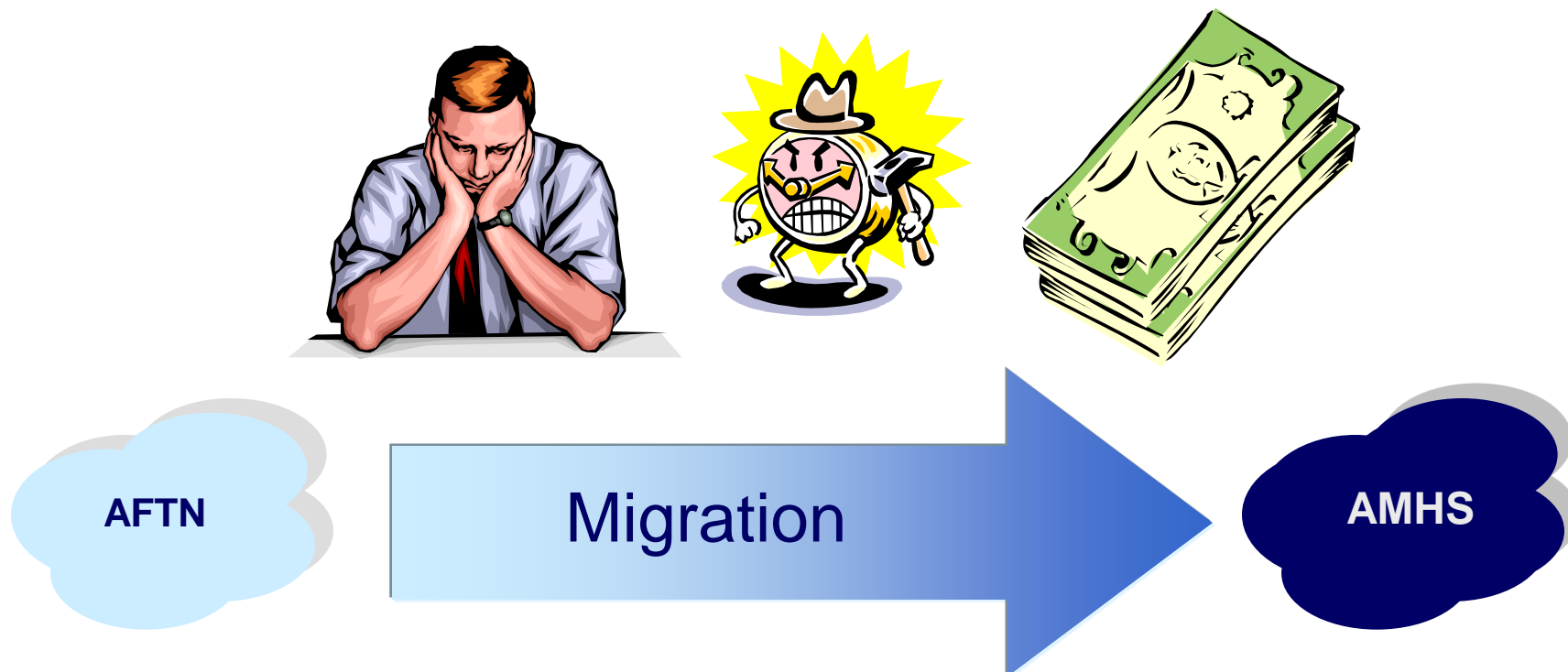


AIDA-NG - Migration to AMHS

The Main Task of the ANSP:

Managing the AMHS Migration

The ANSP – Time and Budget Constraints



Essential for a timely and smooth AMHS Migration:

A mature AFTN/AMHS Switching Product

AFTN/AMHS Switch – Achievement of Maturity

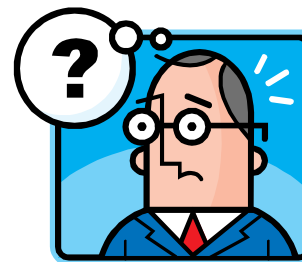
- **The Initial Product – Minimising “Teething Problems”**
 - ✓ Design based on comprehensive and consolidated user requirement specification
 - ✓ Production put under stringent quality and safety control

- **Reaching full Product Maturity**
 - ✓ Consequently putting into practice findings from the deployment
 - ✓ Continuously improving the system by users’ experiences
 - ✓ Keeping pace with regional implementation matters

COMSOFT AIDA-NG – The mature AFTN/AMHS Switch

The mature solution is available:
The COMSOFT AFTN/CIDIN/AMHS Switch
AIDA-NG

Why?



AIDA-NG – Basic Core Component

AIDA-NG is powered by ECG Core Software



COMSOFT is official ECG supplier to EUROCONTROL

ECG – Originally based on common European Requirements

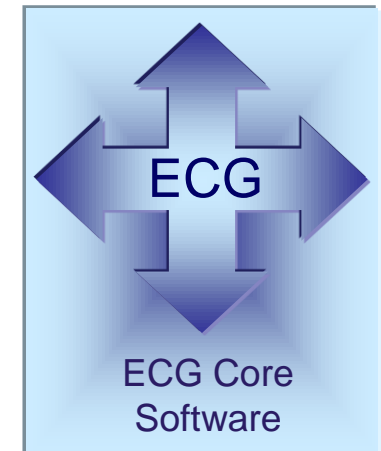


Common European Requirements
for a Universal Message Switch
(AFTN/CIDIN/AMHS)

Full compliance to ICAO AFTN/AMHS Standards

Available for all member states

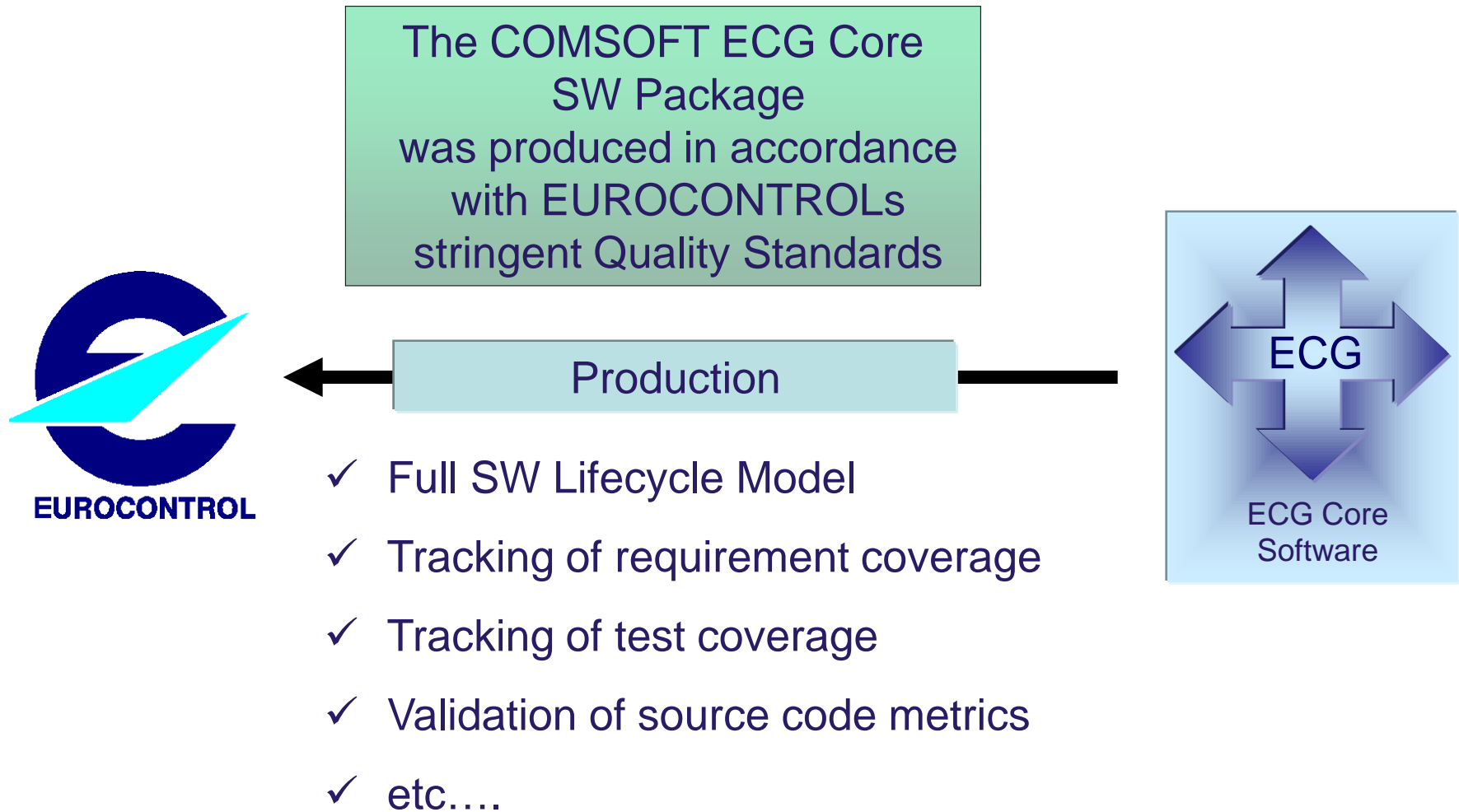
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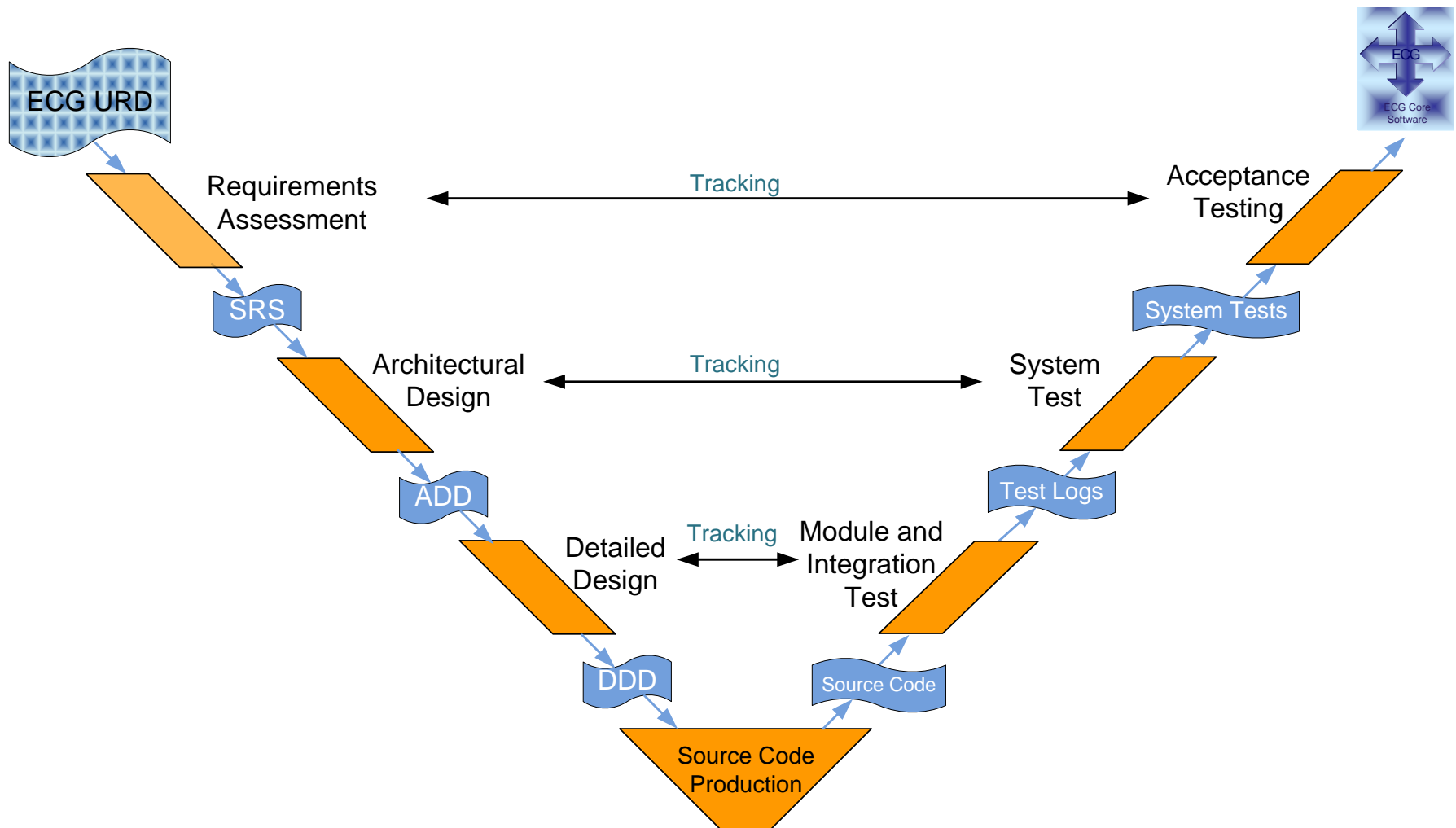
The Result – Excellent Basis for AFTN/AMHS

- Integrated on COTS Platform
(standard server-based architecture)
- Fully Integrated AFTN/AMHS System
(AFTN Switch, AFTN/AMHS Gateway, ATS Message Server)
- Deployable in every ATS Environment
(small(est), medium, big, obsolete, or advanced infrastructure...)
- Maximum Support of the AMHS Migration
("online", without stopping the service)

ECG – EUROCONTROL Quality Standards



ECG Software Life Cycle – V Model



AIDA-NG – Customer Deployment

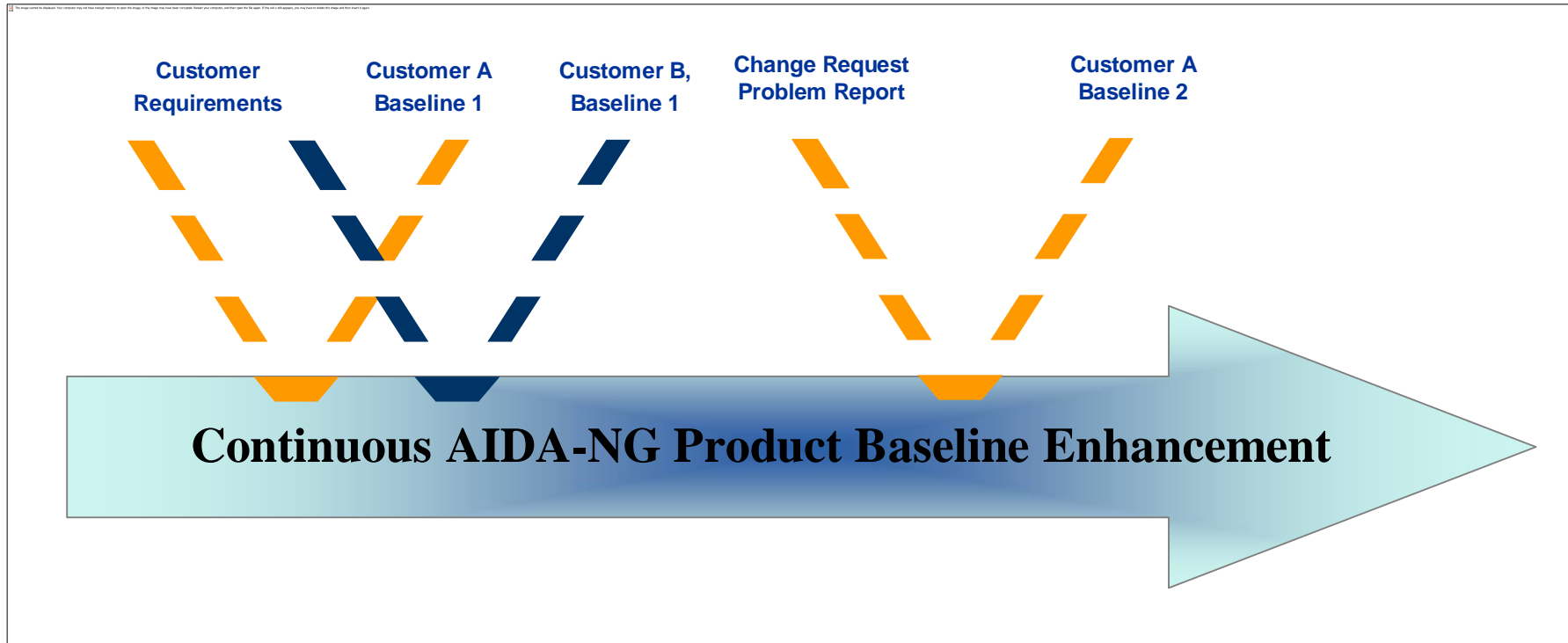
2003:

**The outstanding starting point:
AIDA-NG AFTN/CIDIN/AMHS Switch
powered by the ECG Core Software Package**

2003 - 2009:

**AIDA-NG was rolled-out at 31
Customers in all ICAO Regions**

Basis of the Deployment – AIDA-NG Product Baseline



- ✓ The AIDA-NG product baseline contains the superset of all customer baselines
- ✓ New customer baselines are generated from the AIDA-NG product baseline

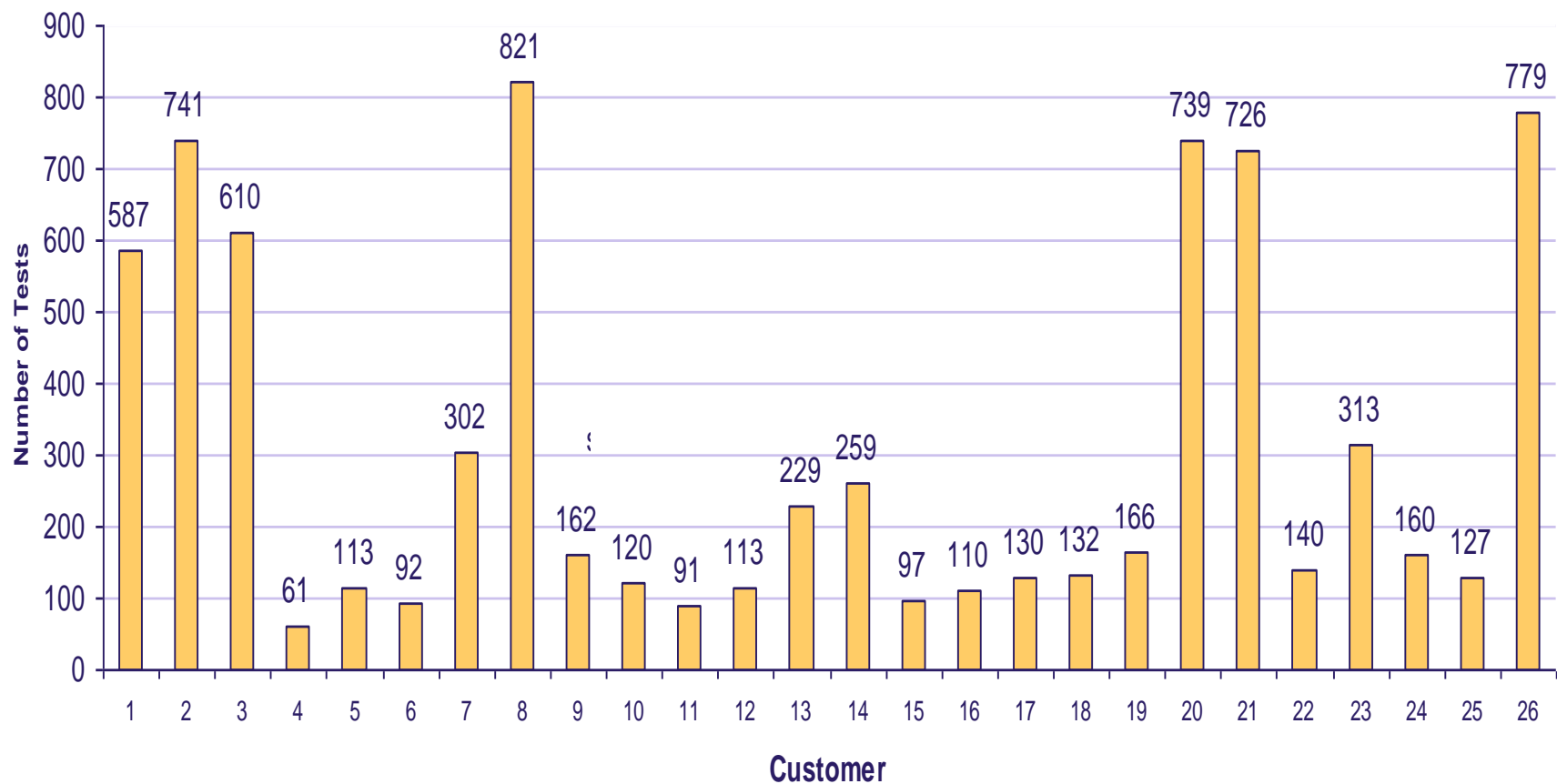
AIDA-NG Product Baseline - Benefits for the Customer

- ✓ The AIDA-NG Product Baseline is always well-tested, stable and mature
- ✓ Customer baselines can be generated from the AIDA-NG product baseline by configuration
- ✓ All AIDA-NG customers may always benefit from the improvements
- ✓ Future extensions can be shared among the AIDA-NG customer community (COMSOFT AMHS User Group)

AIDA-NG Product Line – Outstanding Maturity Level

- ✓ More than **700,000** (!) automated module and integration tests for each customer baseline.
- ✓ The AIDA-NG product line has been excessively tested in a multitude of implementation projects:
- ✓ More than **7900** test cases witnessed by numerous FAT inspection teams since 2005

System Testing – Acceptance Tests



Added Value – Compliance with European Safety Regulations

- ✓ Full compliance with **European Safety Regulations (ESARR1-6)**.
- ✓ Proven **Software Assurance Level (SWAL) 3** according to EUROCONTROL Safety Assessment Methodology (SAM) (SIL-2/IEC 61508 and AL 4/ED-109).

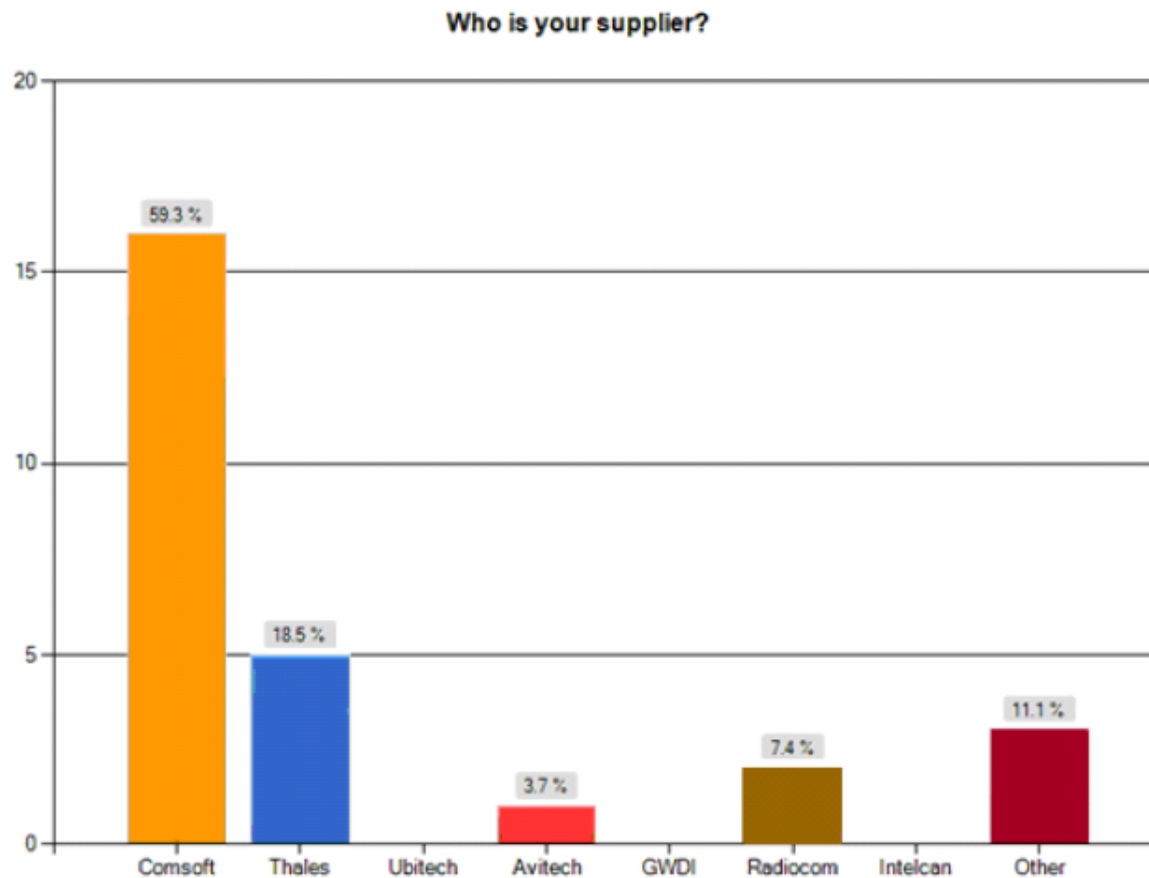
AIDA-NG – Result of the Evolution



AIDA-NG has evolved to the most mature AFTN/CIDIN/AMHS system on the market

COMSOFT is the AMHS Market Leader

SITA AMHS Market Survey (published on the ICAO AMHS workshop in Santo Domingo, November 26th, 2009)



AIR TRAFFIC CONTROL KNOW-HOW

AIDA-NG – Guarantees Low-Risk Project Implementation

AIDA-NG AMHS implementations field experience:

- Unmatched fast deployment all well within time and budget:
typical Projects: 6-8 months
large scale Projects, (e.g. France, UK): 12-15 Months
- Field-proven System Availability:
> 99,99995%
- Minimum guaranteed throughput capability:
200 AFTN/AMHS msgs/sec

Added Value - Contributor to International Organisations & Working Groups



- **OGC**
Open Geospatial Consortium, Inc.

- **RADA**
Regional Air Navigation Services
Development Association

- **EUROCAE**
Full Member

- **ICAO**
EUR/NAT AFS AMHS Planning group

- **ICAO**
EUR/NAT AFSG
(Aeronautical Fixed Service Group)

- **ICAO**
ATN Seminars and Workshops

- **ICAO**
ATN Implementation
Coordinating Group of APANPIRG

- **ICAO**
ATNICG (Aeronautical
Telecommunication
Network (ATN) Implementation
Co-ordination Group)

- **SITA/IATA/ICAO**
FANS Implementation & CNS/ATM
Technology in the North African Region
& Middle East Region

- **ICAO/SITA**
CNS/ATM Technologies for
the AFI Region

- **IFAIMA**
International Federation of Aeronautical
Information Management Associations



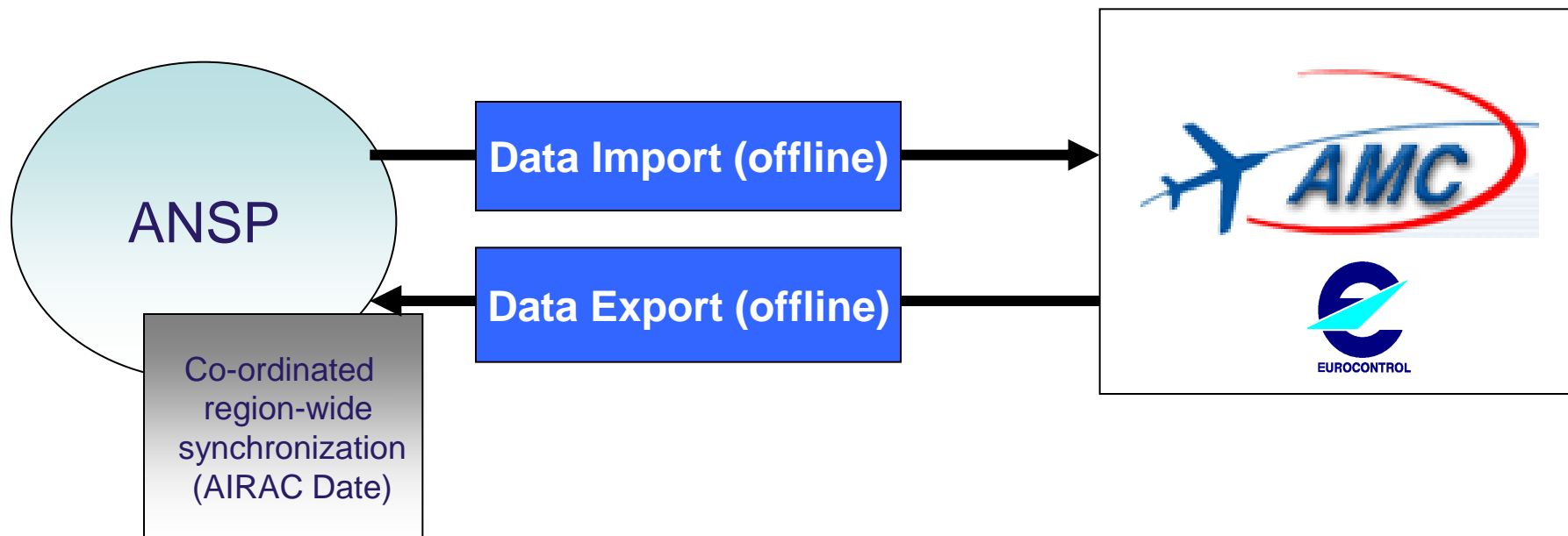
Added Value – COMSOFT keeps pace with the AMHS Implementation

AMC

Global Management of the AMHS Address Directory

Implementation in the EUR/NAT Region - AMC

The Solution for the global Address Management:
EUROCONTROL ATS Messaging Management Centre **AMC**



The solution in all ICAO Regions – the AMC

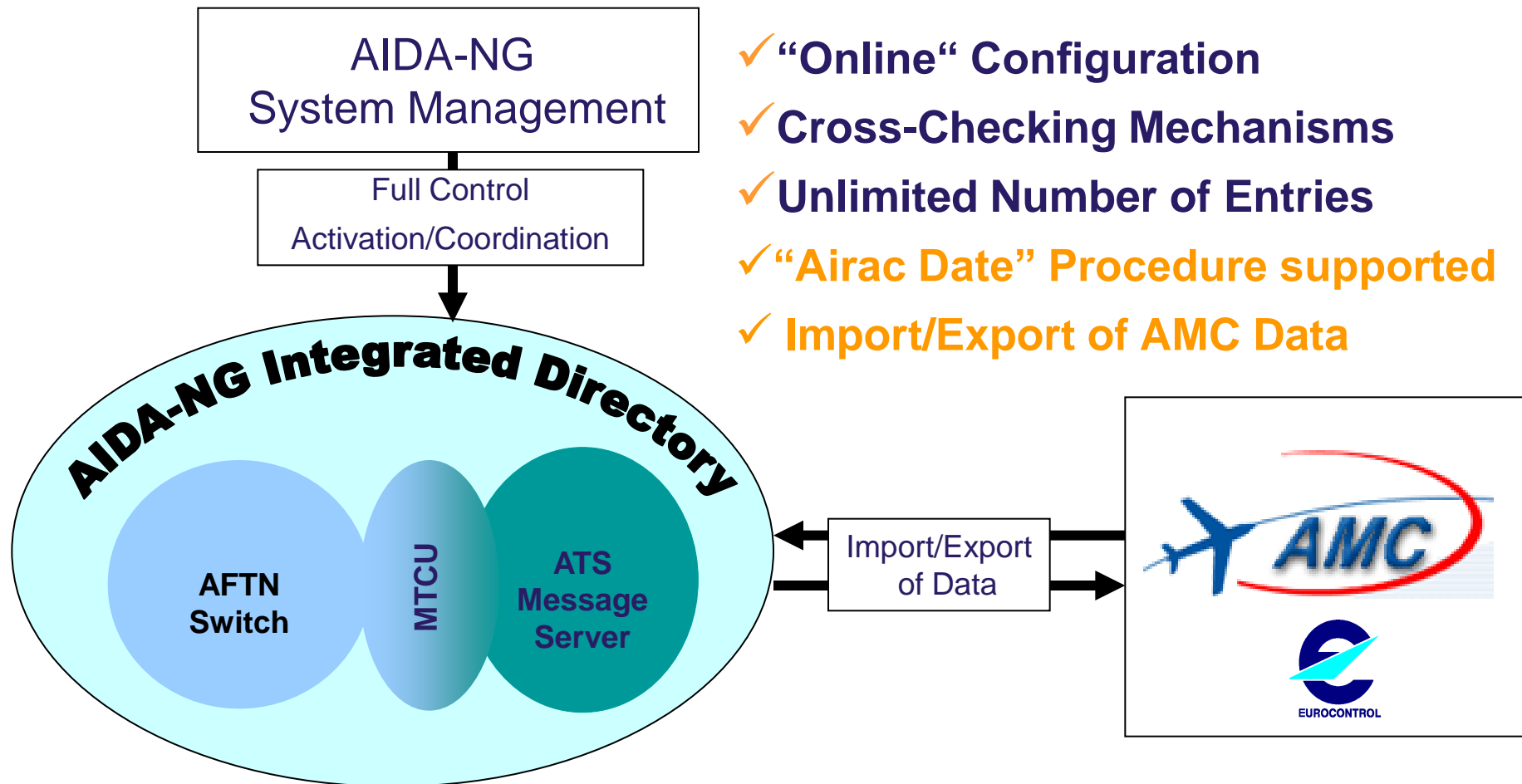


ICAO State Letter AN 7/49.1-09/34

In the short- to medium-term, ICAO will utilize the European ATS Messaging Management Centre (AMC), provided by EUROCONTROL, to coordinate the allocation and management of AMHS addresses.

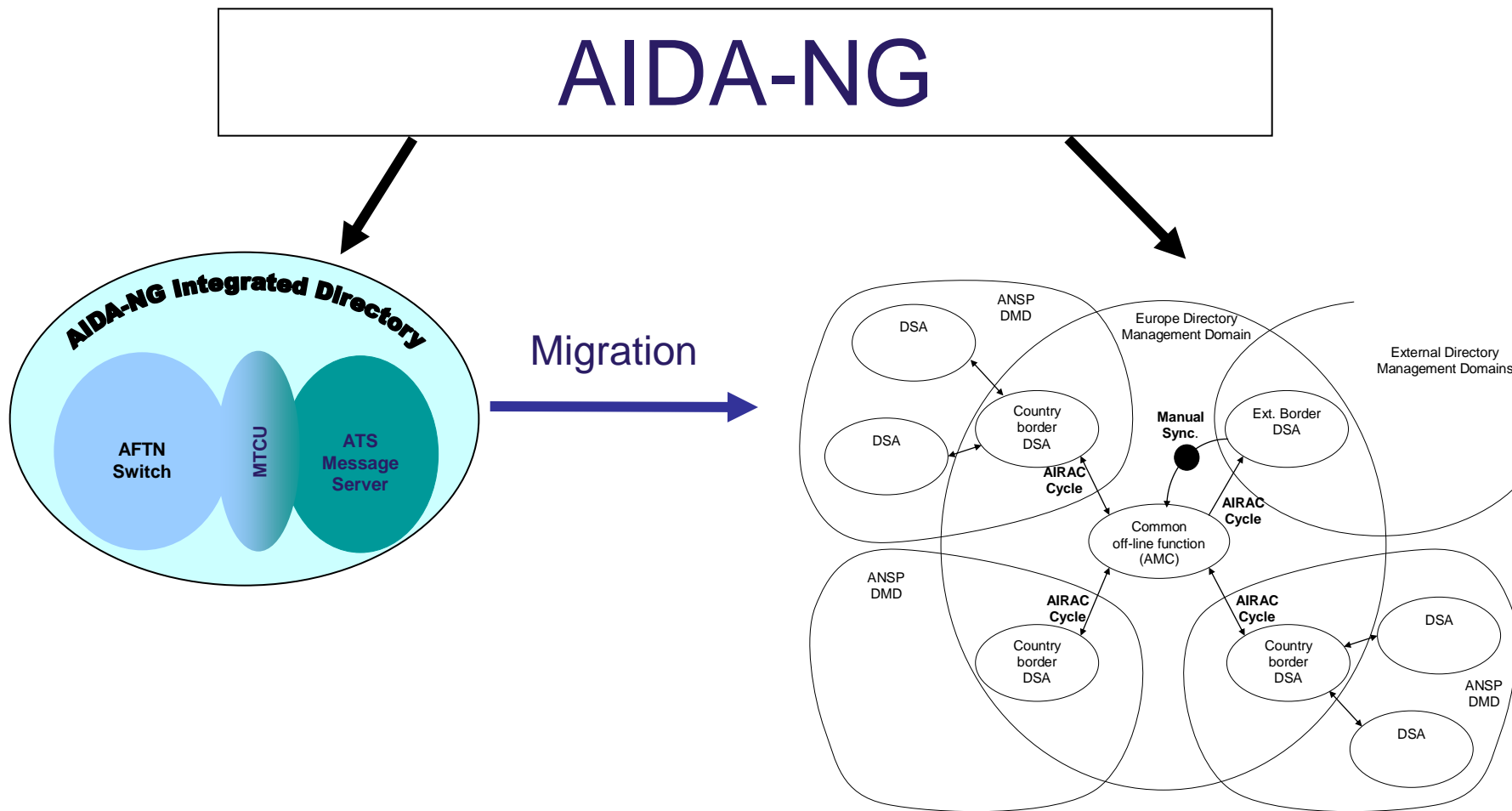
All States are therefore invited to designate representatives to register as AMC users.....

First Supplier supporting automated AMC Data Import/Export



Note: In addition, the DAP interface to the X.500 directory service is fully included

AIDA-NG - Ready to cope with the Evolution in any Region



Source: European
AMHS Common Specification (CS)

Added Value – AMHS Transition Support

AMHS Transition

Two major Steps:

- **AMHS Conformance Tests**
- **AMHS Interoperability Tests**

AMHS Transition - Conformance Testing – “A Must”



AMHS Conformance
Verification →

AMHS
Implementation
under Test

- ✓ Full Support of both, regional EUR + ASIA/Pacific AMHS Manuals (Annex B)
 - ✓ Highest Automation Grade (>95%) of Test Execution
 - ✓ Platform-independent Test-Suites
 - ✓ Test Message Repository in XML Format
 - ✓ Evaluation of Test Results as integral part of Test Suites
 - ✓ Detailed Logs and Test Reports
- Suitable for any AMHS
 - Use of Standard AFTN/AMHS Interfaces and Configuration
 - No specific IUT Test Harness required

Customer References

DFS – Germany	NATS – United Kingdom	skyguide – Switzerland	DSNA – France
LVNL – The Netherlands	Belgocontrol - Belgium	LPS – Slovak Republic	Oro Navigacia – Lithuania
NANSC – Egypt	GACA – Saudi Arabia	DGMAN – Oman	GCAA – Abu Dhabi
HKCAD – Hongkong	MACAU – China	CAAS – Singapore	AAI – India ASA – Australia
Airports Fiji – Fiji	CORPAC – Peru	E.A.C.A - Colombia	

AMHS Transition – The next Step - AMHS Interoperability Tests

AMHS Interoperability Tests (IOP)

- prerequisite to the commissioning of an AMHS link
- performed according to regional AMHS Manuals

COMSOFT Customer Support

- support for set-up and execution of interoperability tests (on demand):
 - ✓ test harness (system configuration, test suite, etc.) according to regional AMHS Manuals, Annex E
 - ✓ test documentation (test reports, logs, etc.)
 - ✓ remote/on-site support during test phase

AMHS IOP Tests – Supported COMSOFT Customers

Option A – Remote Support:

- Bratislava ↔ Vienna
- Frankfurt ↔ Copenhagen
- Frankfurt ↔ EC CFMU AMHS interconnection tests
- Hong Kong ↔ Macau *First AMHS connection in the ASIA/PACIFIC Region*

Option B – On-site Support:

- Frankfurt ↔ Madrid *First AMHS connection in the EUR/NAT Region*
- Abu Dhabi ↔ Muscat *First AMHS connection in the EUR/NAT Region*
- Peru ↔ Colombia *First AMHS interoperability tests in the Char/SAM region according to EUR AMHS Manual*
- ECG ↔ Warsaw
- Mumbai ↔ Singapore
- Fiji ↔ FAA On request of FAA during FAT at COMSOFT
- Macau ↔ Beijing to be continued after Beijing version update

COMSOFT AIDA User Group



You are welcome to join !



CAUG 2nd Annual Meeting 21 – 23 July 2009, Karlsruhe, Germany



Thank You

For more details on products and services
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