COMSOFT AFTN/AMHS Products

by Uwe Kurpat, AFTN/AMHS Product Manager

COMSOFT's Advanced Message Handling Product Line

ICAO MEVA-TMG30

Oranjestad

May 29, 2015

COMSOFT
dedicated to ATM

AIDA-NG – AFTN/CIDIN/AMHS Product

COMOSFT provides two products for AFTN/AMHS

- **AIDA-NG**
  Integrated AFTN/AMHS Switch

- **CADAS**
  Client-Server-based AMHS UA terminal system for the ATS end user

Both Products are native COMSOFT key-products, which have proven their high flexibility by being deployed in most different ATC environments

AIDA-NG – AFTN/CIDIN/AMHS Product

AIDA-NG

Aeronautical **I**ntegrated **D**ata Exchange **A**gent - **N**ext **G**eneration

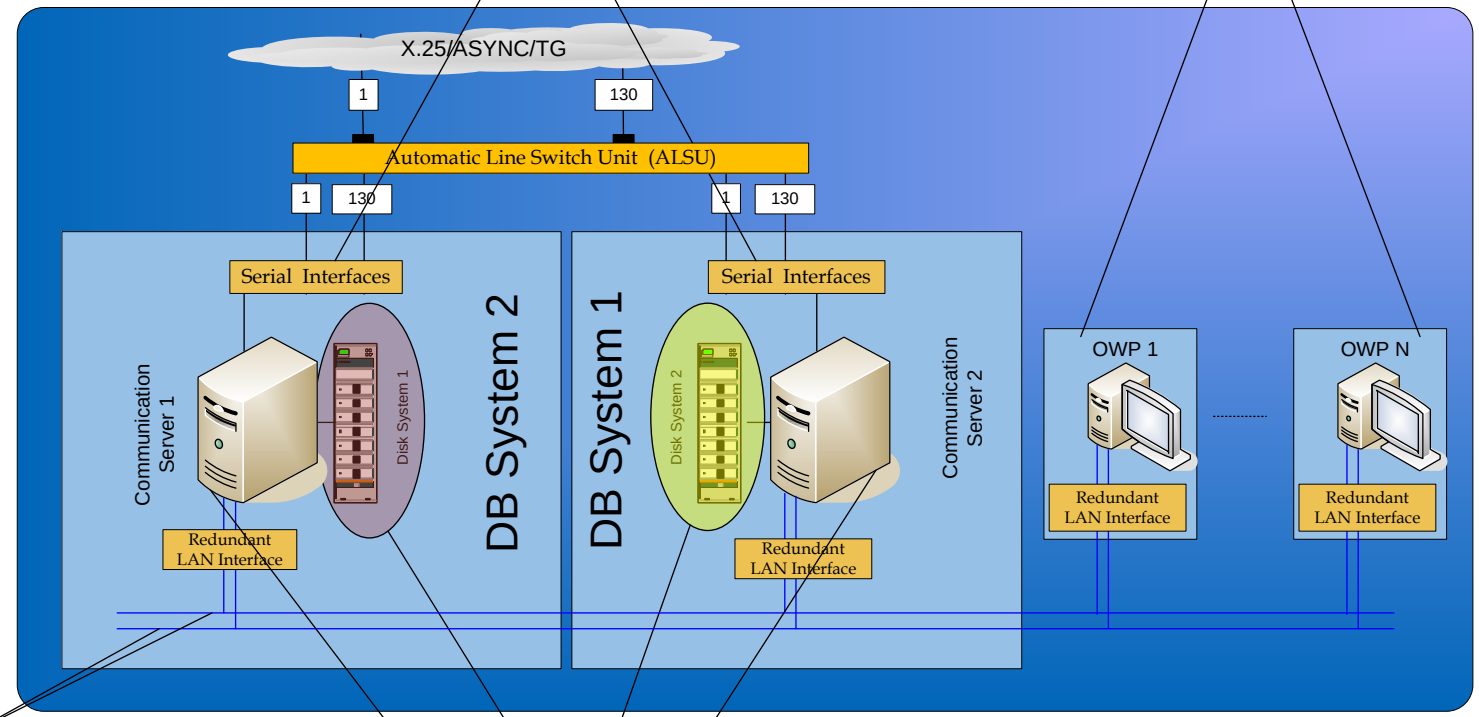
COMSOFT key product since more than 20 years

Only MHS on the market providing a common messaging framework for all types of aeronautical data
(AFTN, CIDIN, AMHS, SITA, WMO, AIDC, OLDI….)

AIDA-NG – Redundant in all Components

✓ Duplicated serial interfaces with Automatic Line switch Unit

✓ N-fold Redundancy by indentical OWPs

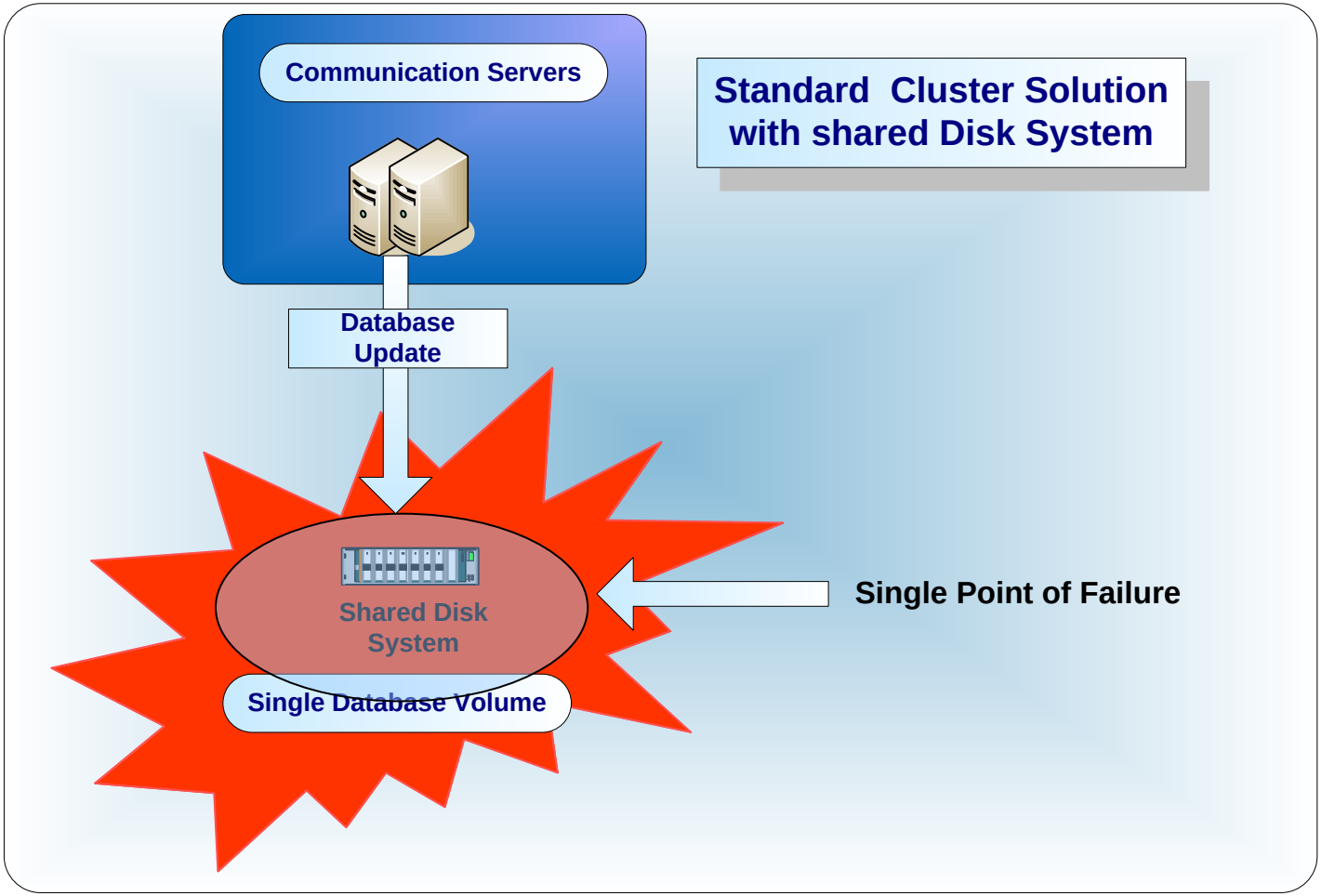


✓ Fully redundant LAN Architecture

✓ Duplicated Databases provide true data redundancy (major improvement of the non-reliable RAID-based Storage Technology)

✓ Servers working in symmetric Operational/hot standby Combination
✓ Switchover time 5 secs without loss of data

AIDA-NG - What we avoid – Shared Storage Devices



- Conventional Cluster Solutions typically use "shared" components, e.g. Application Software, Data Volumes, and Storage Devices.

AIDA-NG – Integrated ATSMHS

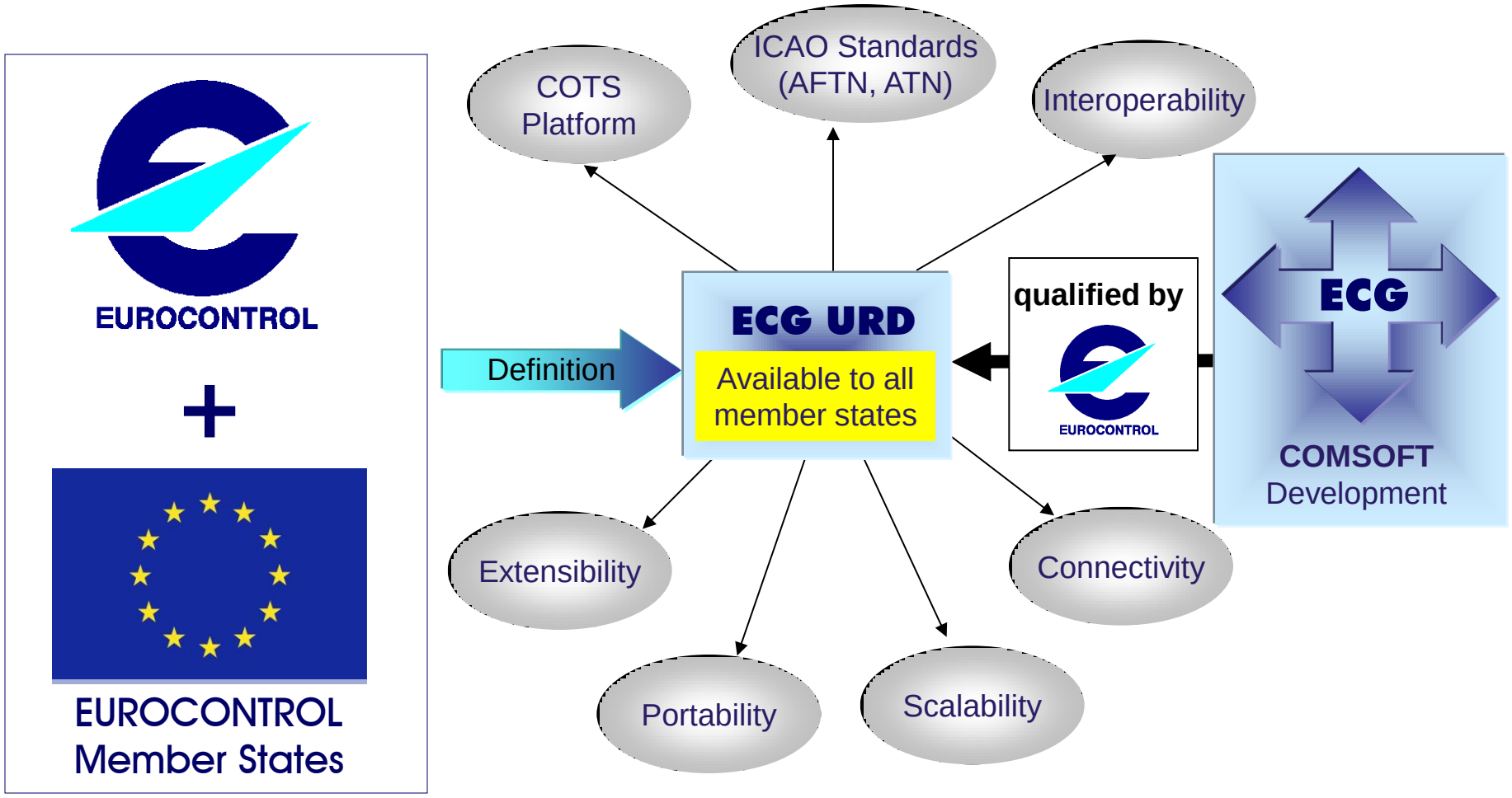
AIDA-NG is powered by **ECG Core Software**

(**ECG** = European Communications Gateway)

The **ECG Core SW** is the basis for the universal ground-ground communication service of the European ANSPs

COMSOFT is official ECG supplier to EUROCONTROL

ECG Core Software – Realisation



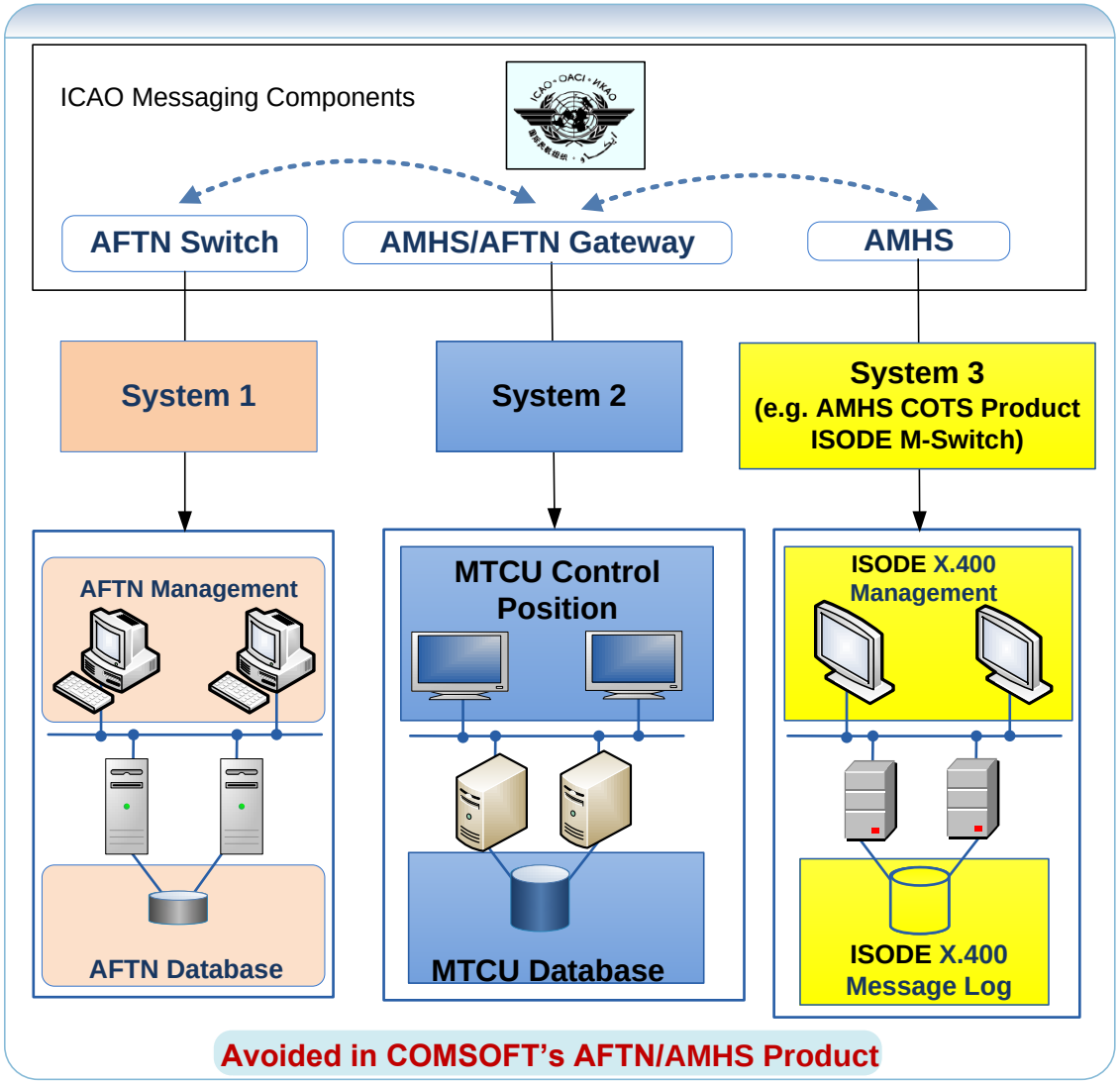
URD = User Requirements Document

ECG Core Software - Key Requirements

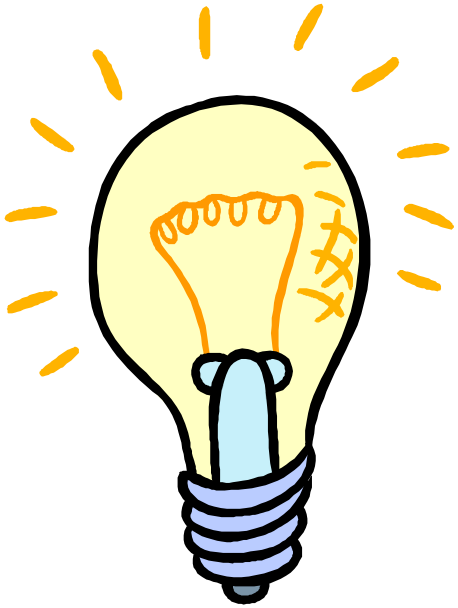
- Integrated on COTS Platform
  (standard server-based architecture)
- Universal Connectivity
  (AFTN, AMHS, SITA, WMO, OLDI, AIDC, etc.)
- Deployable in every ATS Environment
  (small(est), medium, big, obsolete, or advanced infrastructure…)
- Maximum Support of the AMHS Migration
  ("online", without stopping the service)

Long-Term Mixed Operation of AFTN and AMHS

Standard (Fragmented) Solution – Suitable ?

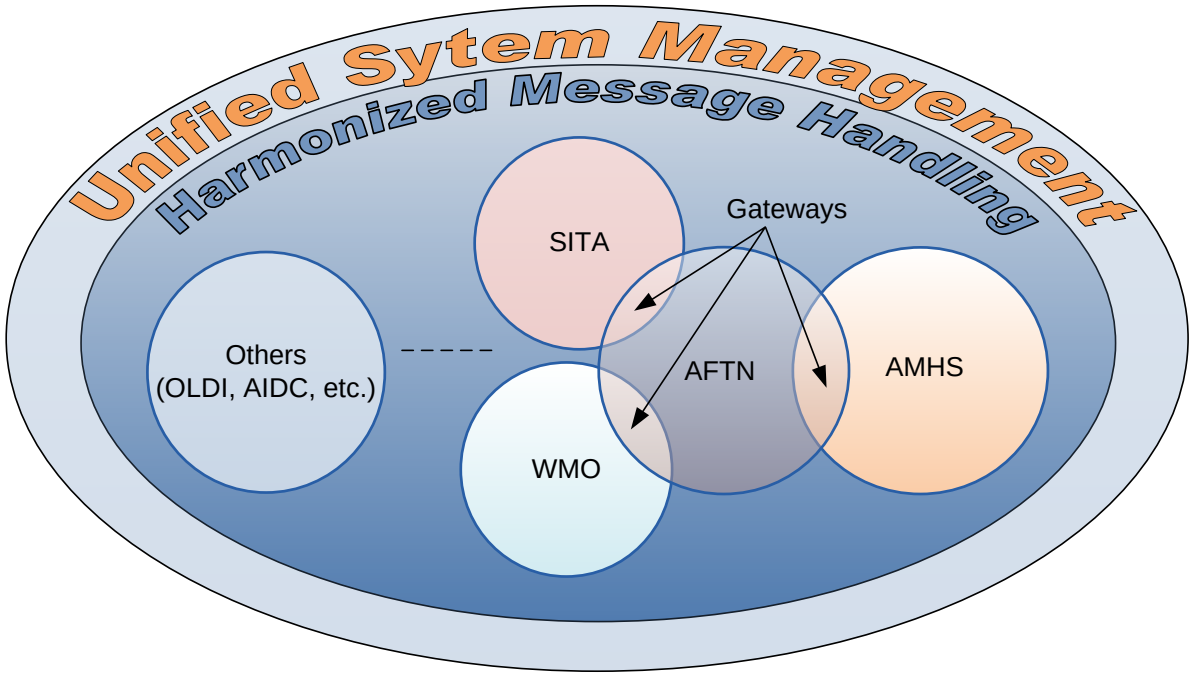


The Solution



Integrated System

AIDA-NG – Integrated Messaging Services



100% Compliance to Standards

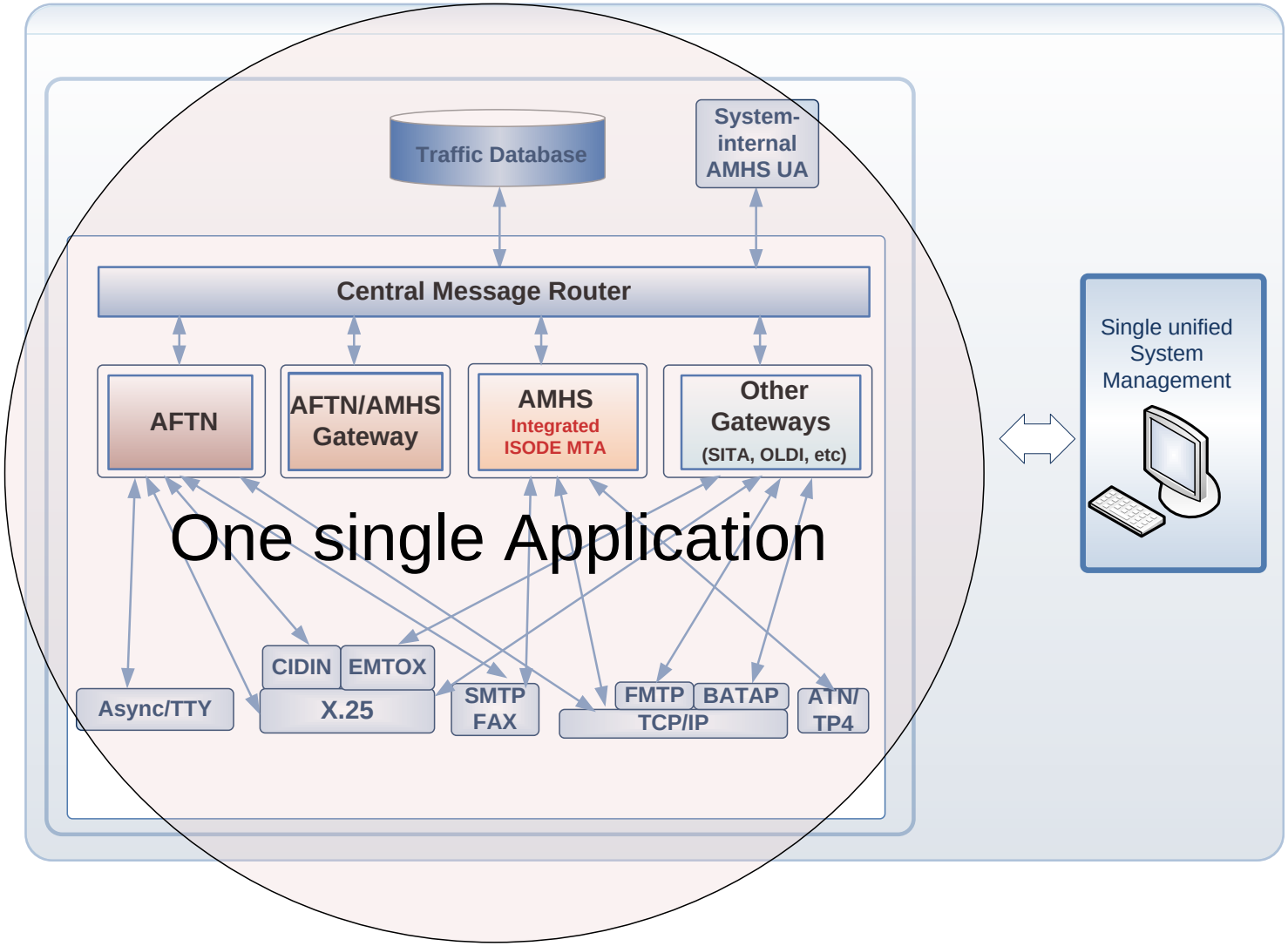
EUROCONTROL

World Meteorological Organization
Working together in weather, climate and water

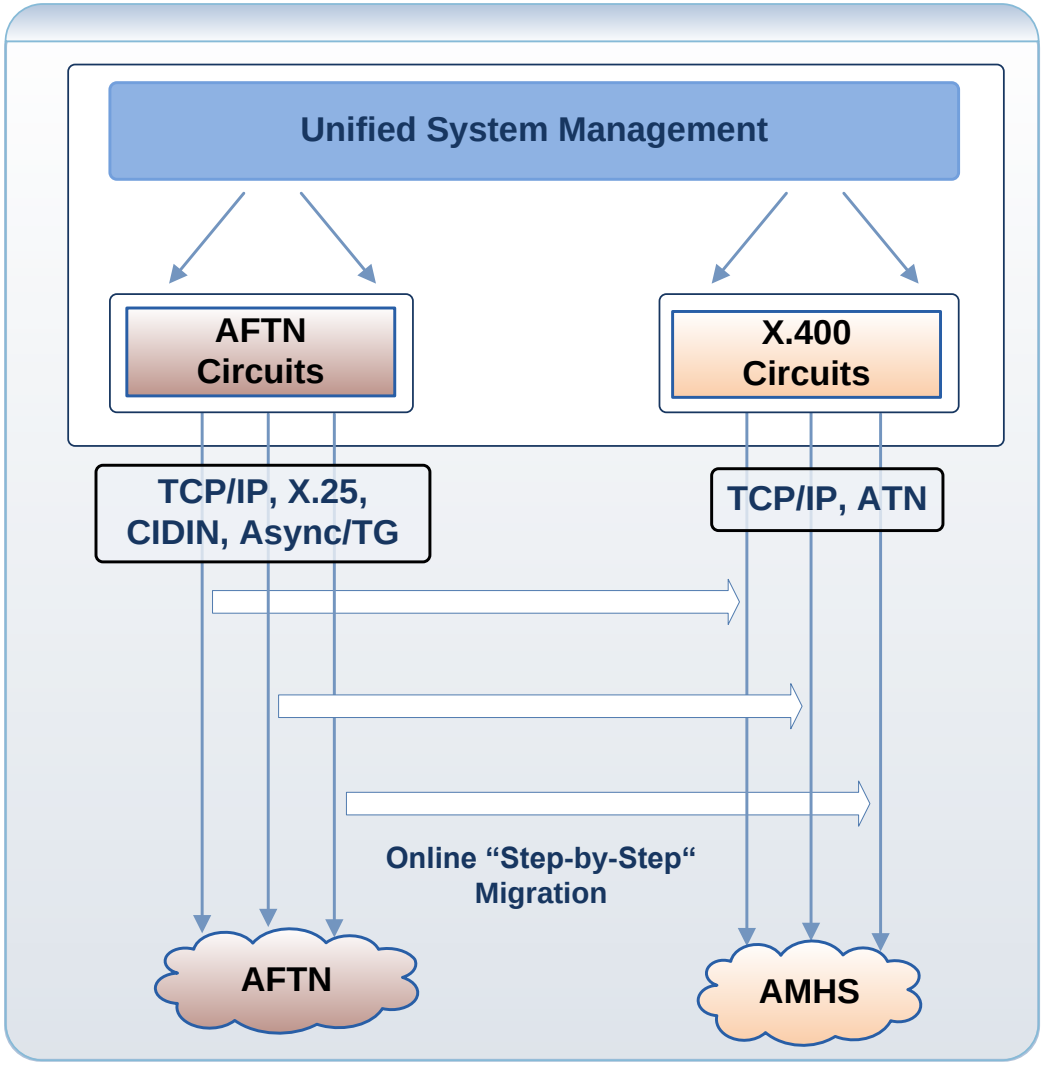
+

- ✓ **100% Integration of all messaging entities (AFTN, AMHS, SITA, WMO, OLDI, others)**
- ✓ **Harmonised Message Handling (AFTN,AHMS,SITA,WMO, OLDI, others)**
- ✓ **Unified System Management**

AIDA-NG Strong Point – Horizontal/Vertical Integration

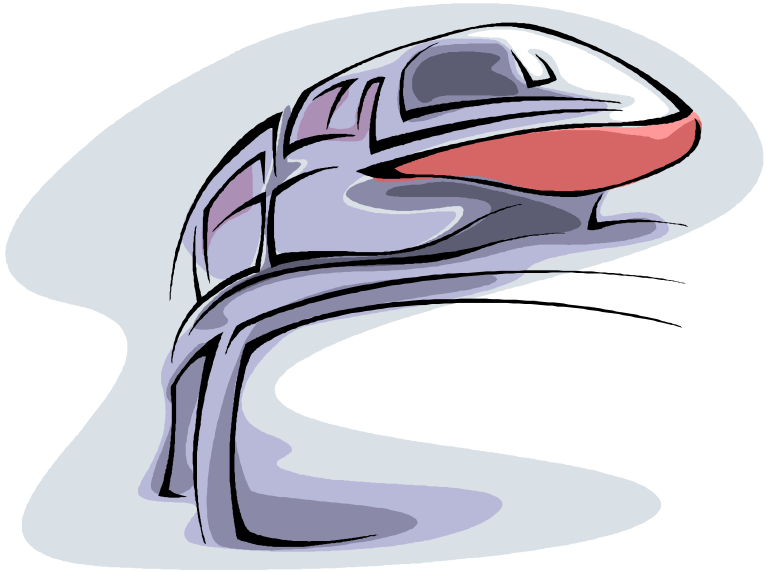


AIDA-NG Strong Point - AFTN to AMHS Transition Support



AIDA-NG Performance Values

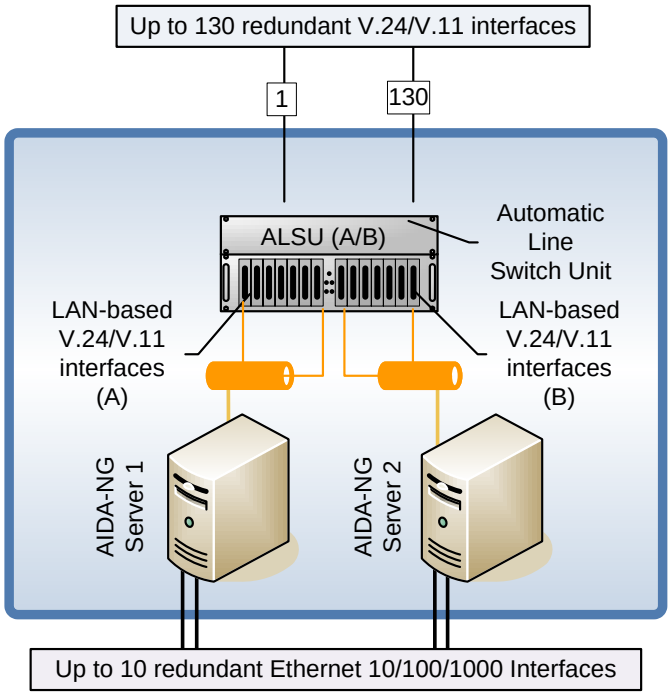
- Platform
- Protocols/Messaging
- Throughput
- Reliability
- Maintainability
- Robustness
- Extended Supervision



Server-Based Platform

- Integrated on Intel® processor-based servers and workstations of various vendors (IBM, HP, DELL, etc.)
- RED HAT Linux Enterprise Distribution (Scientific Linux)
- Fast real-time database of any capacity
- X-Windows and Java-based GUIs

AIDA-NG Strong Point - Interfaces and Protocol Stacks



Messaging Interfaces supported in "one system":

- Up to 130 serial redundant V.24/V.11 interfaces:
  - AFTN/ASYNC (direct, leased lines)
  - AFTN/Telegraphic Interface
  - AFTN/X.25 (PVC/SVC)
  - CIDIN/X.25 (PVC/SVC)
  - WMO/X.25 (PVC/SVC)
  - OLDI FDE ICD (X.25 SVC)
  - SITA/BATAP/EMTOX (X.25 PVC/SVC)
- Up to ten Ethernet LAN 10/100/1000 Interfaces
  - AFTN/TCP/IPv4,6 (bilateral agreement)
  - AFTN/SOAP
  - AMHS P1/ATN (via ATN Router)
  - AMHS P1,P3/TCP/IPv4,6
  - AMHS SOAP **(Service for SWIM)**
  - FMTP (TCP/IP)
  - SITA/BATAP/MATIP (TCP/IP)

AIDA-NG Strong Point – Additional Gateways

- **AFTN/SITA Gateway**

Conversion of AFTN messages ←→ SITA messages

- **AMHS/SITA Type-X Gateway**

Conversion of AMHS Messages ←→ SITA Type-X messages (XML)

- **AFTN/E-mail Gateway**

Connection to E-mail Server via SMTP/POP3

Conversion of AFTN messages ←→ E-mail

- **AMHS/E-mail Gateway**

Conversion of AMHS Messages ←→ e-mail

Full support of extended services (attachments)

- **E-mail/FAX Gateway**

Conversion of E-mail ←→ FAX (G3)

Fully applicable for the AFTN/AMHS ←→ E-mail GW

- **OLDI/FMTP Gateway**

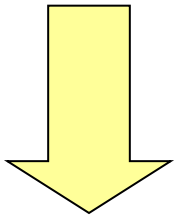
Conversion of FDE ICD ←→ FMTP

Throughput Figures Example

Msg Length 300 Bytes	Message In/Out AMHS ←→ AMHS: 375 msg/sec in, 375 msg/sec out AMHS ←→ AFTN: 350 msg/sec in, 350 msg/sec out
Msg Length 10.000 Bytes	Message In/Out AMHS ←→ AMHS: 325 msg/sec in, 325 msg/sec out AMHS ← → AFTN: 225 msg/sec in, 225 msg/sec out
Average Transit Time	AFTN → AMHS: 60 ms AMHS → AFTN: 60 ms AMHS → AMHS: 40 ms Average: 55 ms
Command Response Time	< 2 sec

Strong Point - Message Congestion Handling

- ✓ System can hold more than 250,000 pending messages (AFTN/AMHS) in transmission queues
- ✓ Switching Performance and System Access is not degraded under this load
- ✓ System is fully protected against overload by flow control mechanisms



Manual Contingency Procedures on message level (e.g. a message drain function) are not required

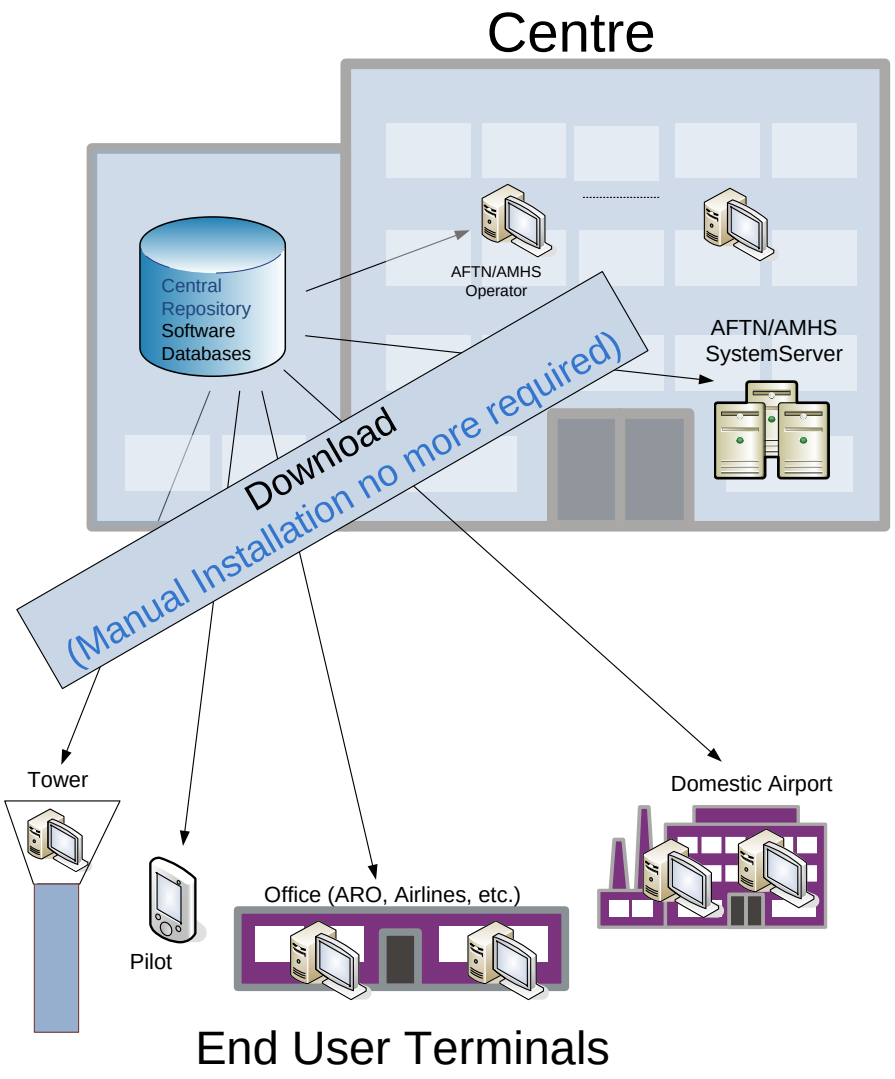
AIDA-NG/CADAS – System Availability (April, 2015)

Excerpt of Customer Installations	Number of Operational Systems	Operational since ...	Number of operational hours/total
Germany	1	Mar-02	116016
Bosnia and Herzegowina	2	Dec-02	218832
Libya	1	May-04	97008
Eurocontrol CFMU	2	Nov-04	185184
Philippines	1	Dec-05	83112
United Kingdom	1	Jun-06	78744
Macedonia	1	Jul-06	78024
Serbia and Montenegro	1	Nov-06	75072
United Arabian Emirates	1	May-07	70728
Singapore	1	Jun-07	69984
Australia	1	Jul-07	69264
Oman	1	Nov-07	66312
Morocco	1	Dec-07	65592
Slovak Republic	1	Apr-08	62664
Egypt	1	Nov-08	57528

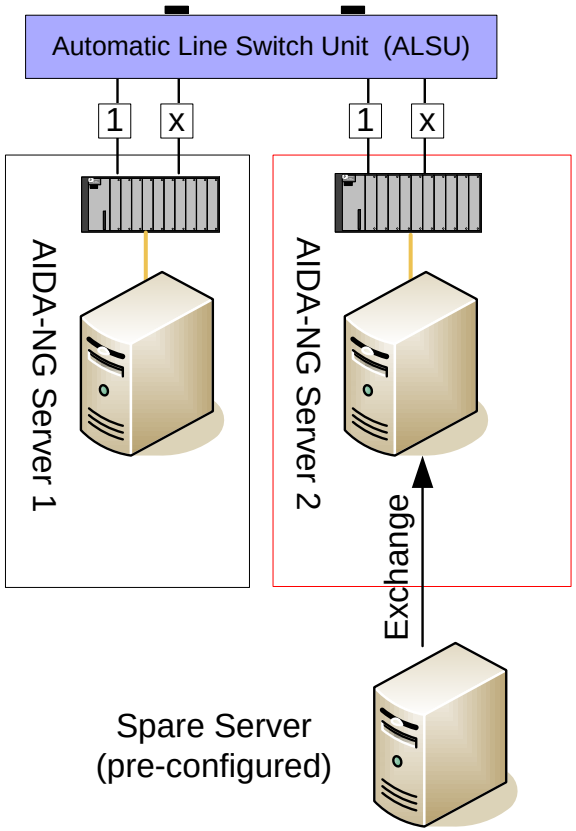
Field-proven system availability: > 99,999956%

AIDA-NG – System Maintainability

Central Boot/Configuration/Software Server



AIDA-NG Strong Point – Example Server Exchange

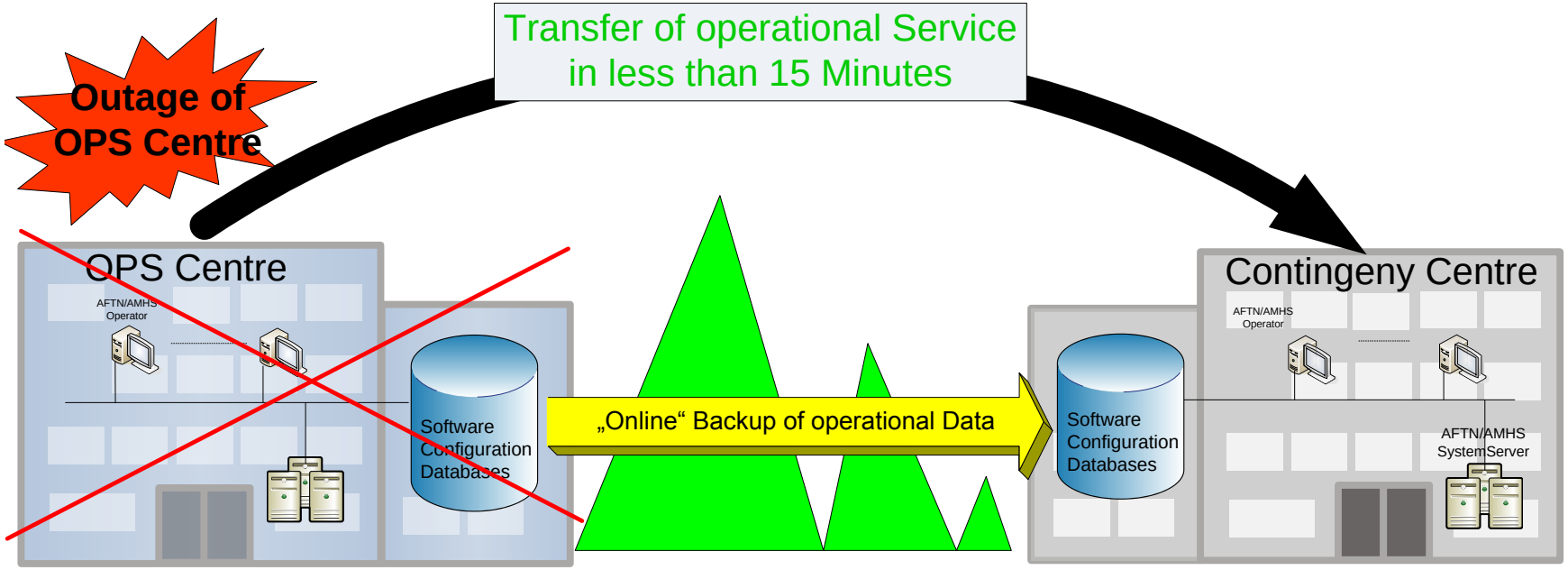


Exchange of a spare server can be done in two steps:

1. Configure spare server via basic installation CD (5 minutes)
2. Reboot spare server

- ✓ Exchange can be done in approximately 10 minutes
- ✓ Installation of software, configuration, databases, etc. is not required
- ✓ No interruption of service during exchange of the server

AIDA-NG Strong Point - Dual Site Handling



In Operation – AIDA-NG Dual Site Configuration Australia

Operational System: **Brisbane**

Contingency System: **Melbourne**

Transfer of service from Brisbane to Melbourne was executed within 30 minutes

Strong Point - Unrivalled Benefits for Users

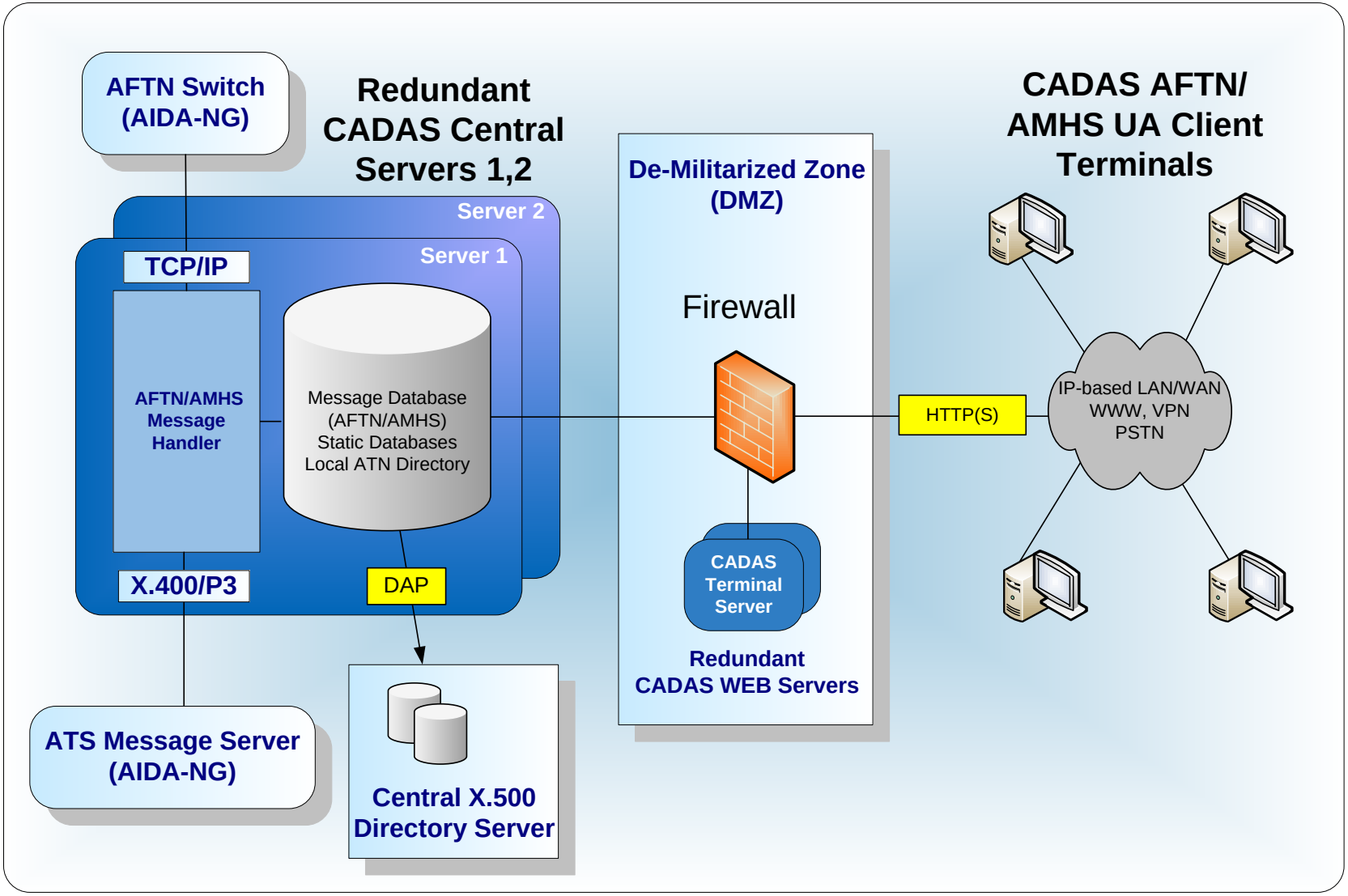
- ✓ Redundancy without any single point of failure
- ✓ Complete System Switchover in < 5 sec
- ✓ Fully integrated and tuned X.400 COTS product (redundancy, stability, throughput, extended queue handling, diagnostics, etc.)
- ✓ Unified System Management (AMHS, AFTN, legacy part, X.400, etc.)
- ✓ 100% protection against overflow situations
- ✓ Unmatched high message throughput
- ✓ Dual Site Operation/Contingency Management

CADAS

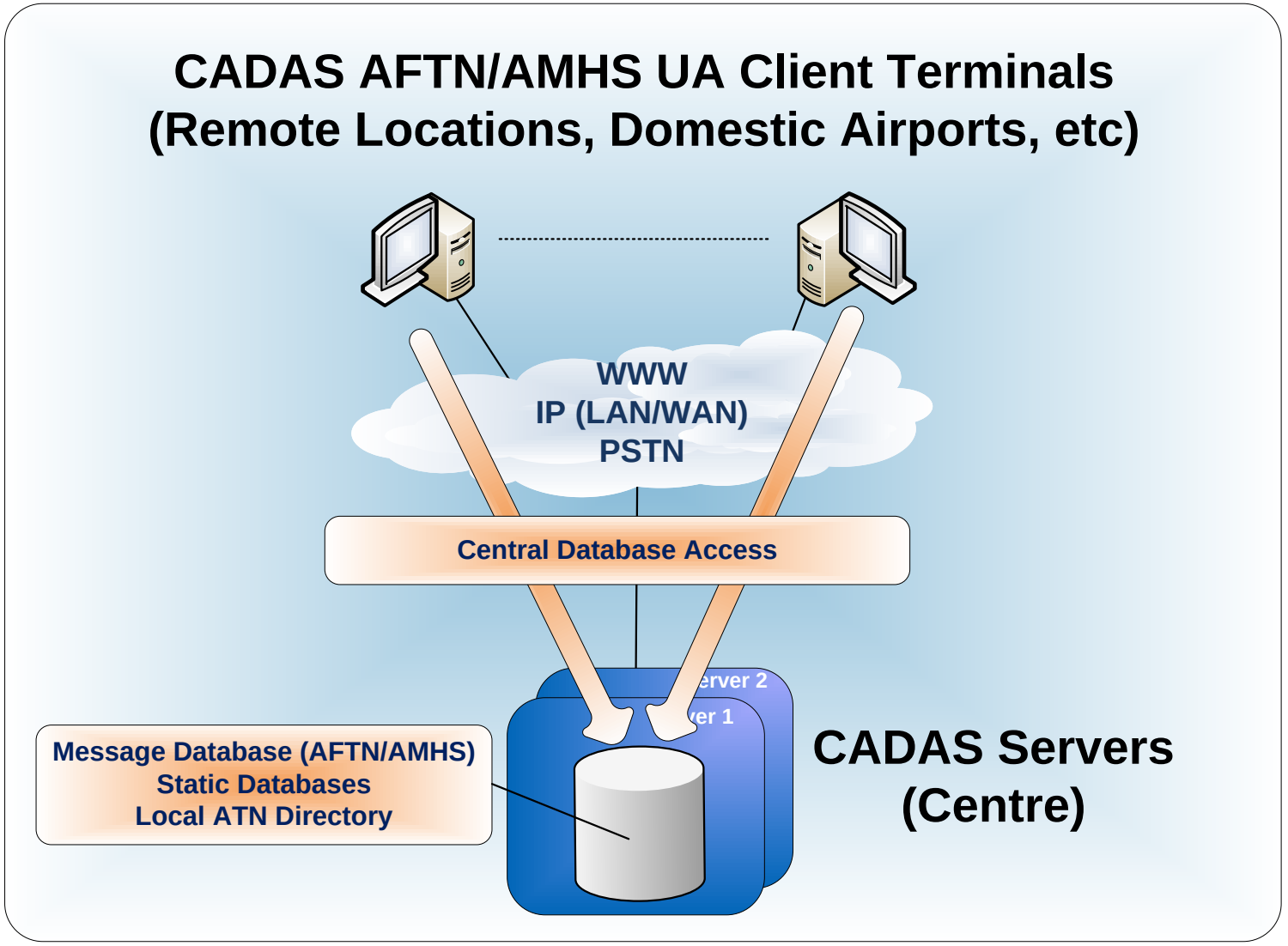
COMSOFT Aeronautical Data Access System

COMSOFT's advanced client/server-based ATS Terminal System

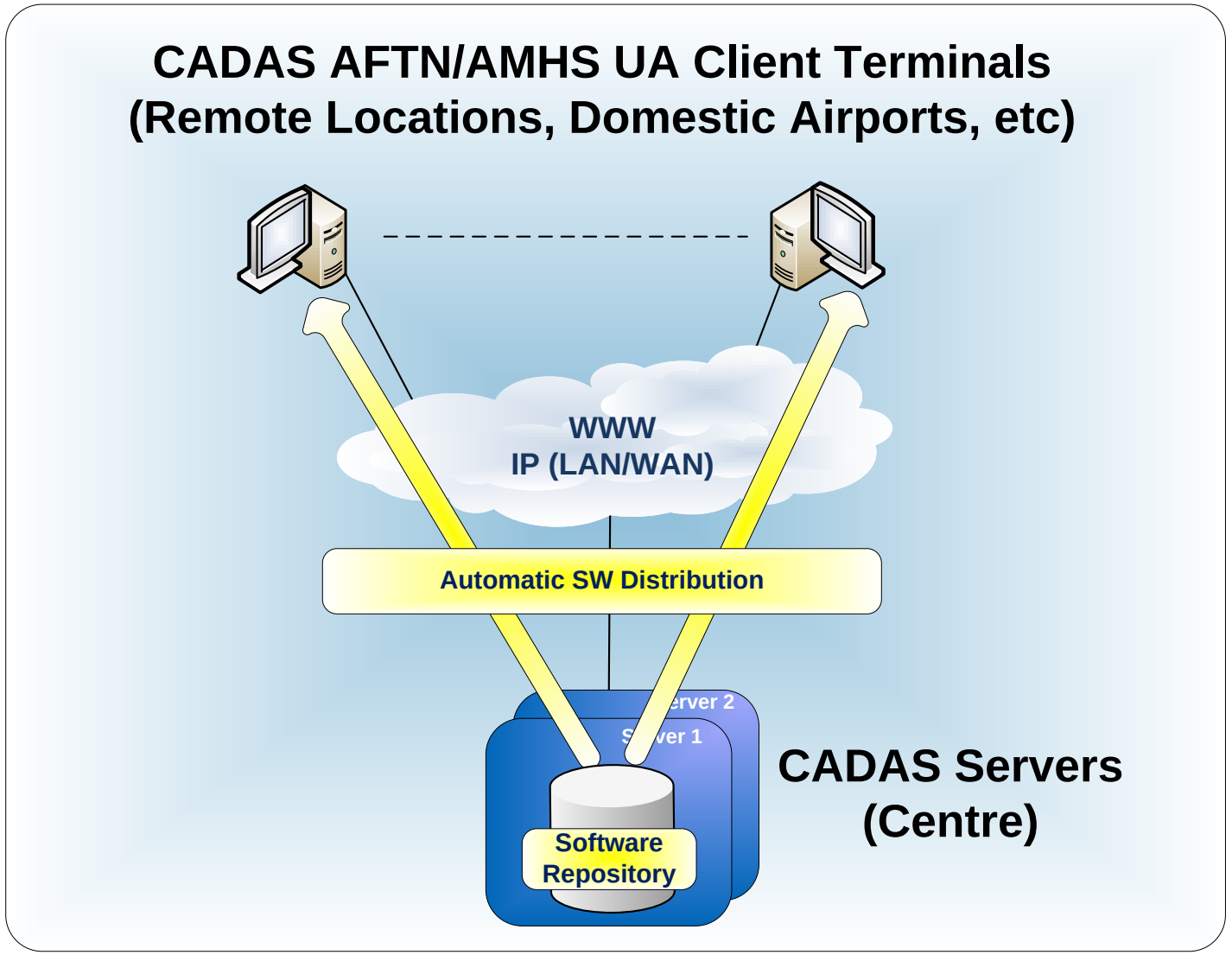
CADAS – Client/Server Terminal System with ATS/AFTN or ATS/AMHS UA Client Terminals



Strong Point - Client/Server System Database Access



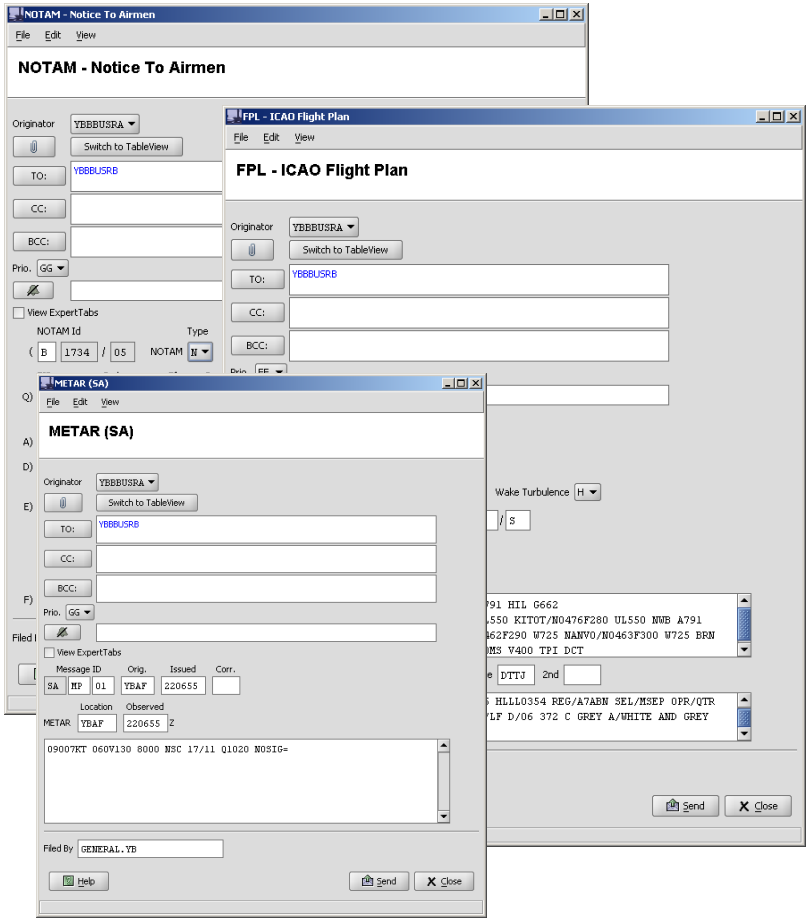
Strong Point - Client/Server System Software Maintenance



CADAS – Terminal Applications

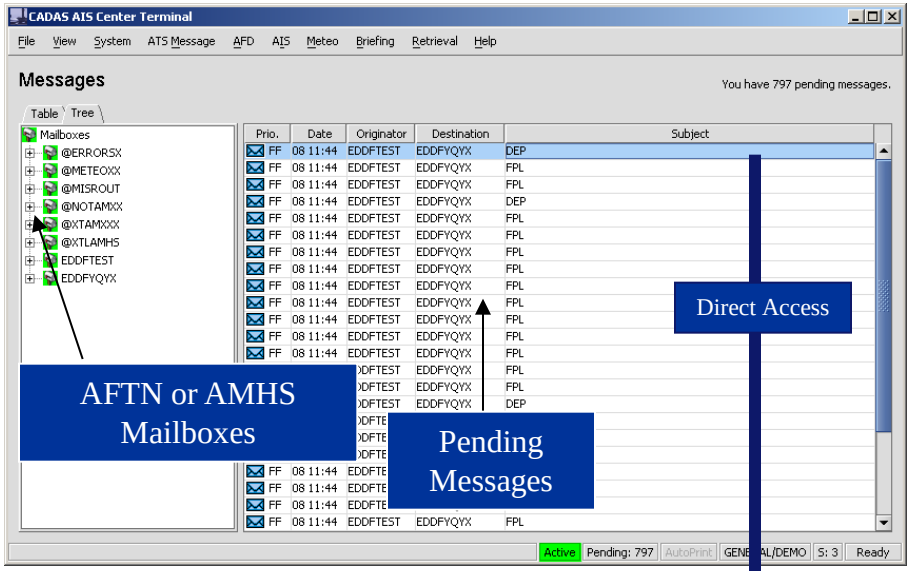
- Centre Terminal
  Full Scope of ATS Functions for ATC Controllers, Tower, ARO, Airlines
- ATS Terminal
  Management of ATS Messages (FLP+ associated, NOTAM, METEO, free text)
- Pilot Terminal
  Proposal filing (FPL, DLA, CHG, CNL), Active flight monitoring
- Flight Strip Printing Terminal
  Automatic generation, update and printing of flight strips
- Administration Terminal
  Supervision, control and configuration of the entire system

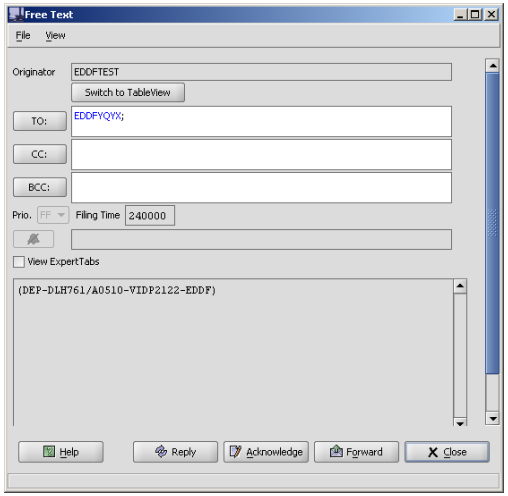
CADAS – ATS Client Terminals (AFTN or AMHS)



- Platform-independent Java Application
- "Online" monitoring of incoming messages (AMHS or AFTN)
- Syntactic/semantic checking of received messages with type detection (FPL, NOTAM...)
- Template-specific view of received messages
- Automatic printout of incoming/transmitted messages
- Templates for all kinds of ATS messages (FPL+ associated, etc.) with online checking mechanisms
- Highly sophisticated message retrieval function with a multitude of filter criteria
- Support by central static databases (aircraft types, flight routes, FIRs, aerodromes, etc.)

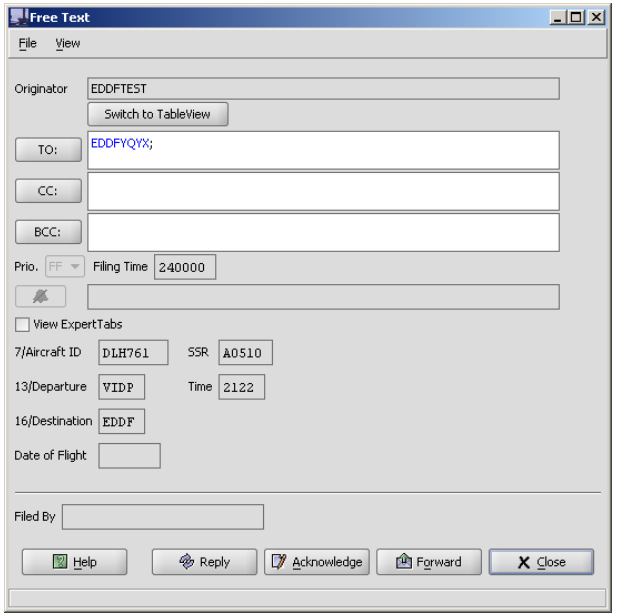
CADAS ATS Client Terminal – Mailbox Monitoring





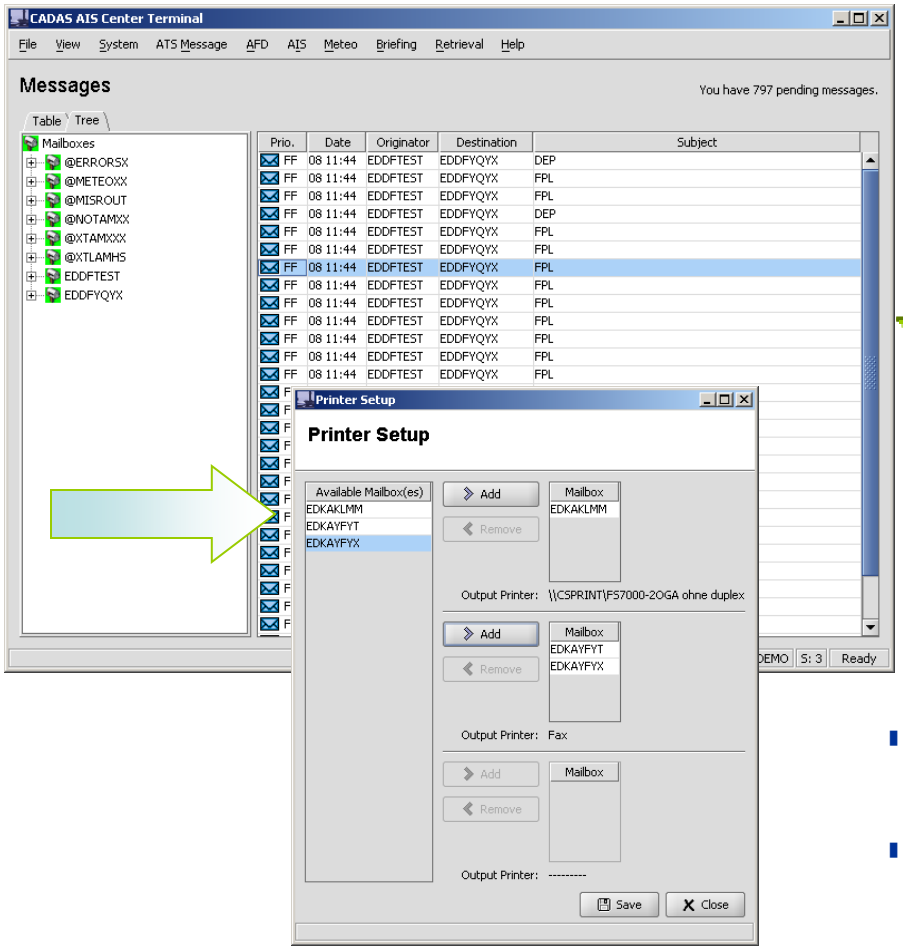
Free Text Processing

Template Processing



- Pending messages (AFTN or AMHS) can be directly accessed and processed
- Several mailboxes can be monitored simultaneously

CADAS ATS Client Terminal – Message Printing



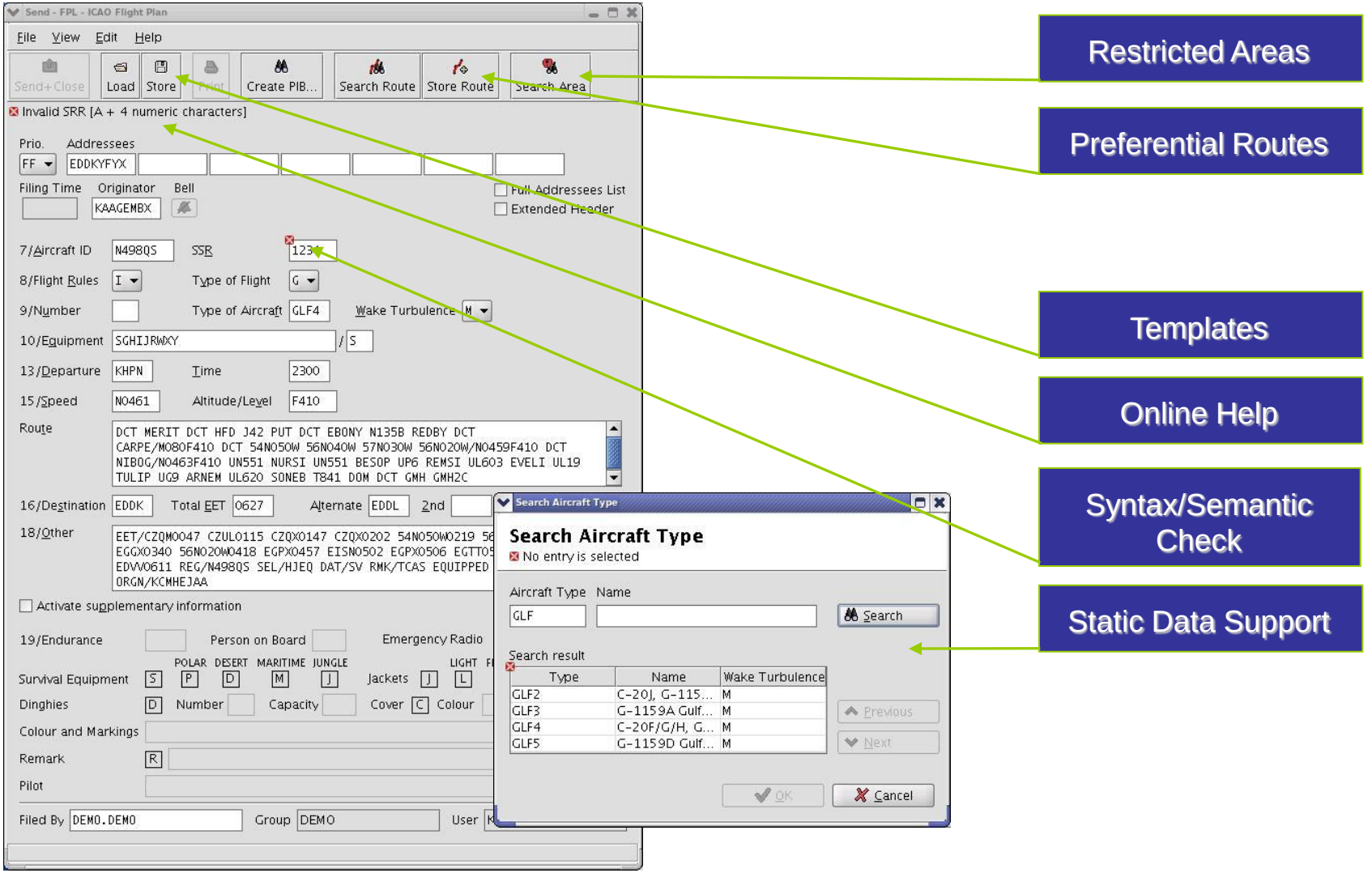
EDKAYFYT ⇒ System Printer 1:

EDKAYFYX ⇒ System Printer 2:

EDKAKLMM ⇒ System Printer 3:

- Automatic printing of messages according to Printer Setup
- Up to three printers can be assigned for auto printing on each Terminal

CADAS ATS Client Terminal - FPL Management



Restricted Areas

Preferential Routes

Templates

Online Help

Syntax/Semantic Check

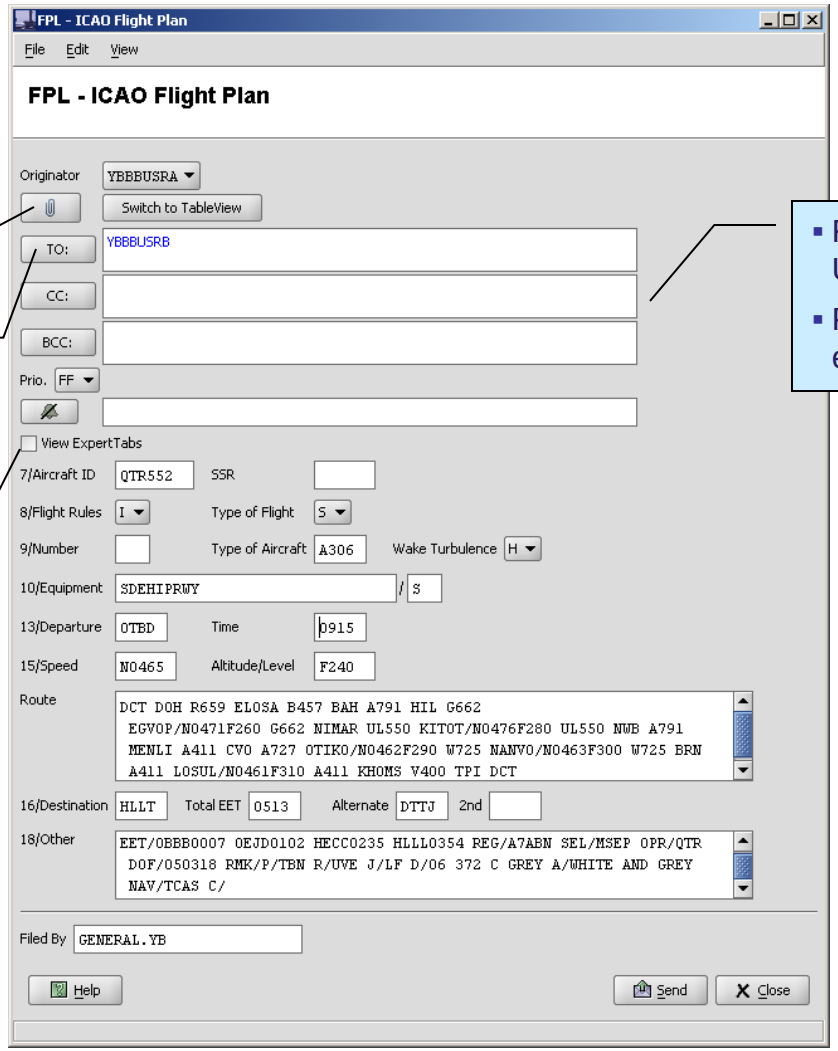
Static Data Support

Strong Point CADAS ATS Client Terminal – Integrated AMHS Functionality

Attachment

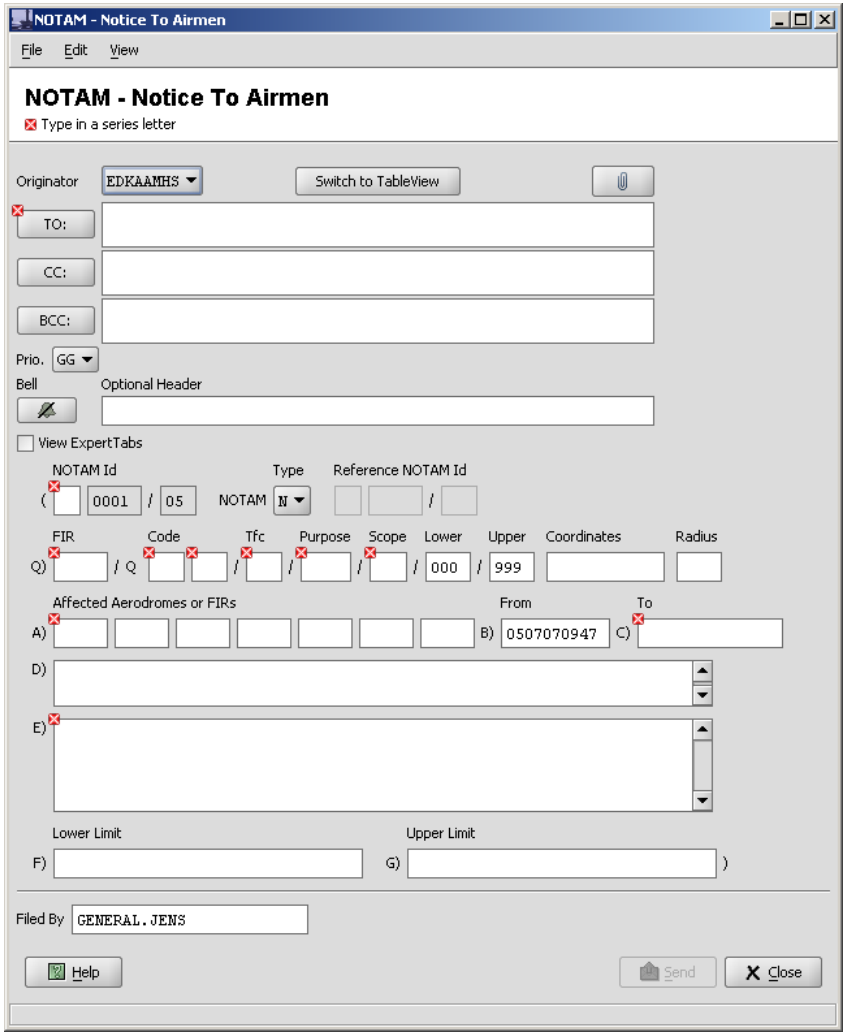
Access to central address book

Display/hide AMHS Attributes



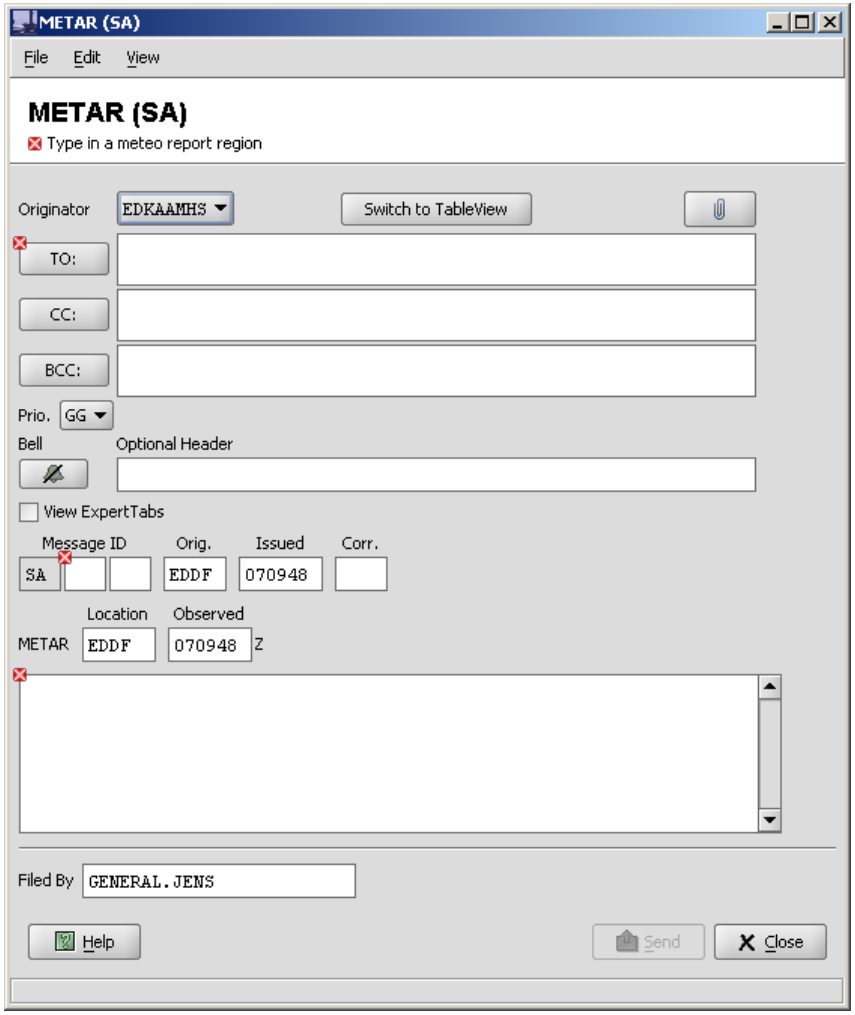
- Fully integrated AMHS User Agent
- Practically invisible to the end user

ATS Terminal – Creation of NOTAMs



- Auto NOTAM Series number allocation,
- Message Templates:
  - NOTAM N/R/C
  - SNOWTAM
  - ASHTAM

ATS Terminal – OPMET Templates



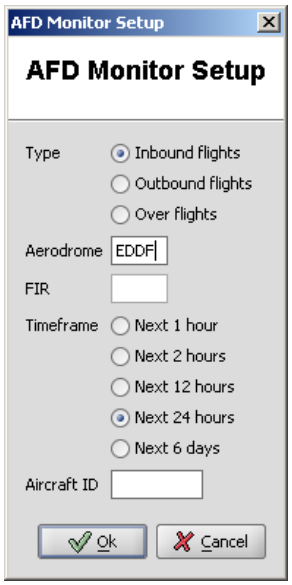
- Sophisticated retrieval mechanism with a multitude of selection attributes available
- METEO Message Templates with formatted Inputs and online field checking mechanisms
- Various message templates including:
  - METAR
  - SPECI
  - SIGMET
  - AIRMET
  - TAF

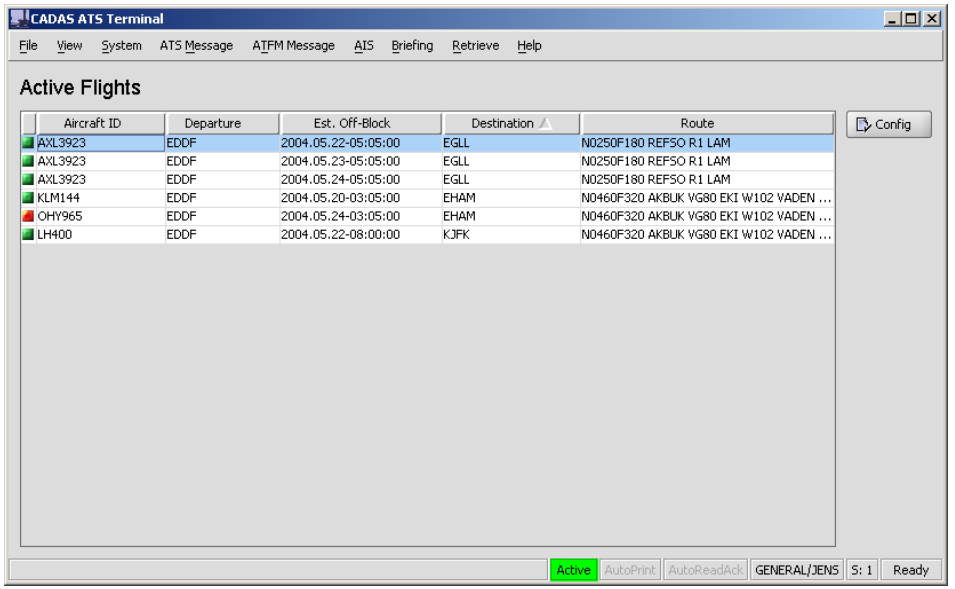
CADAS – Extensions

Active Flight Database

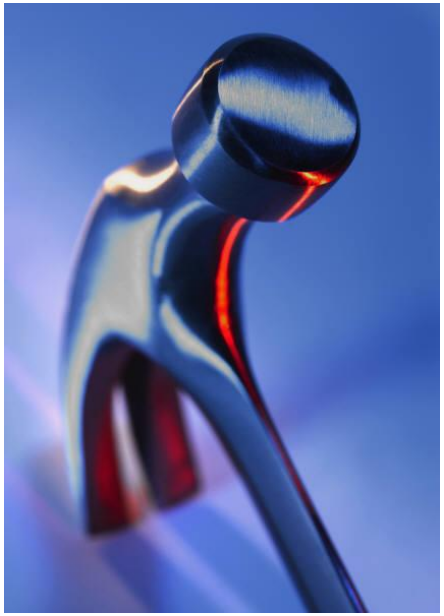
Active Flight Database

- Online monitoring of Inbound, Outbound, and Over-Flights
- Configurable time window
- Callsign filter and sorting criteria
- List of ATS message history of each flight





Services - How you get it



COMSOFT delivers "turnkey" solutions

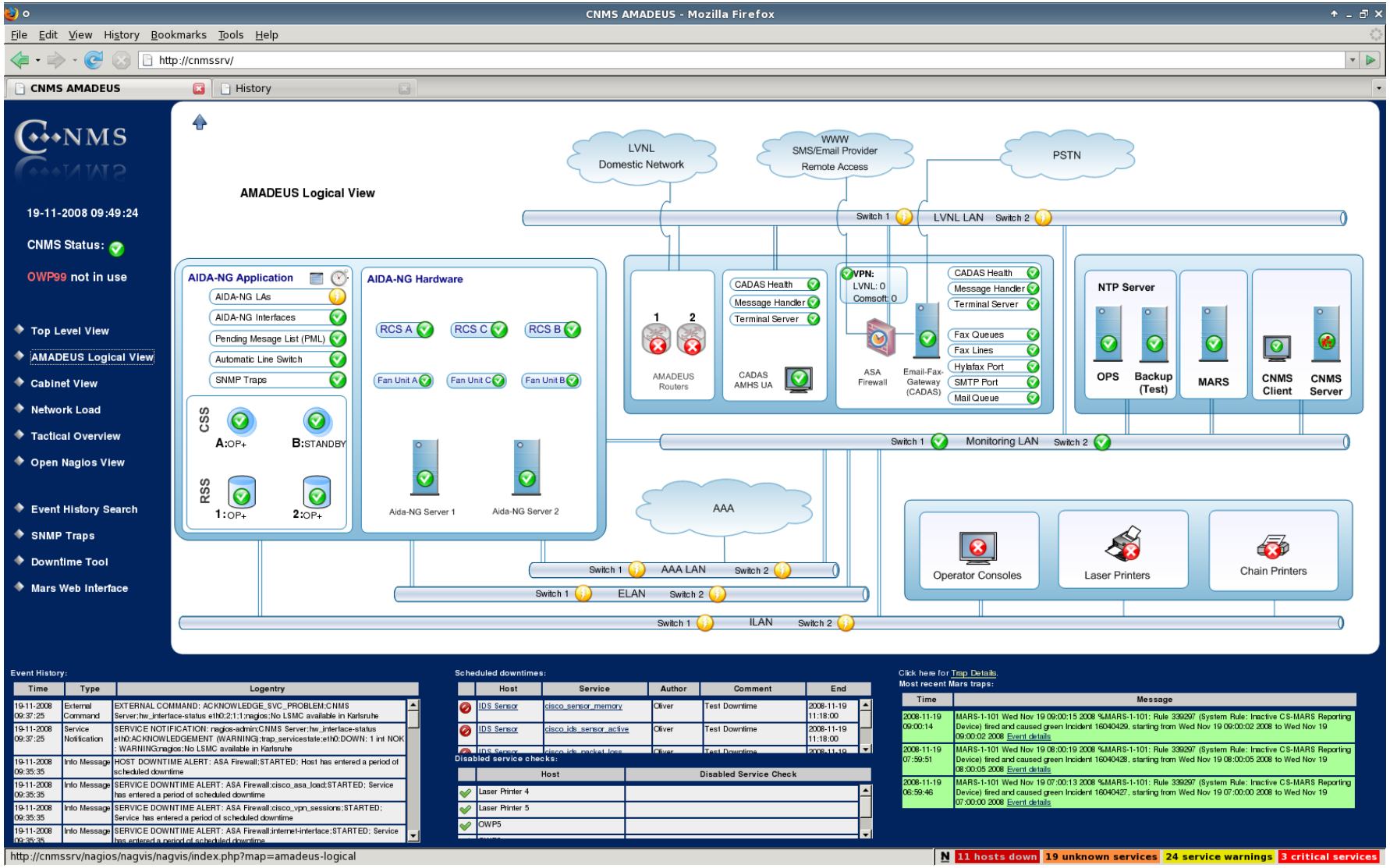
Services – "Turnkey" Solution – Example

Valuable Add-On: COMSOFT Network Management System

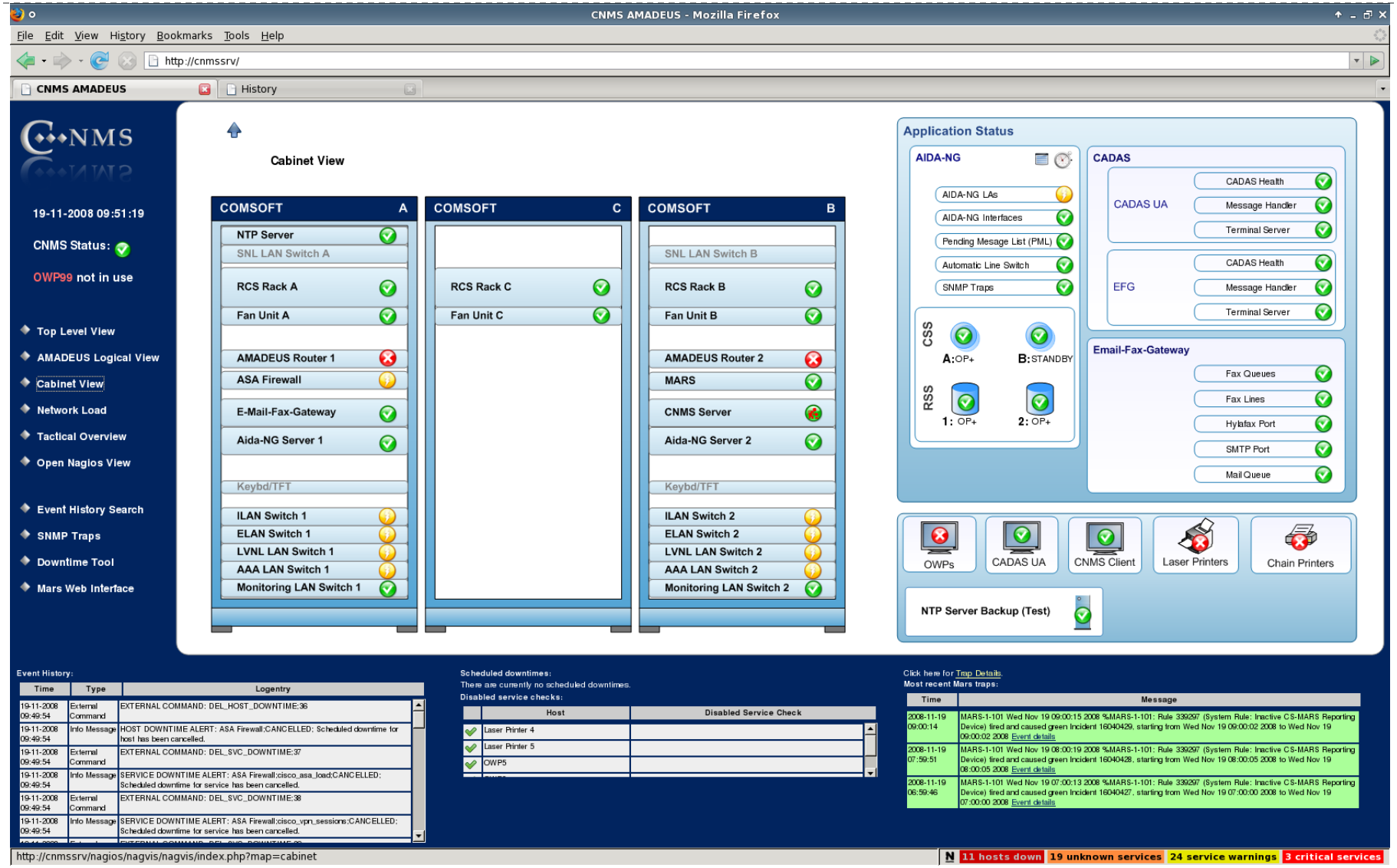
CNMS

Central Supervision of the entire Location

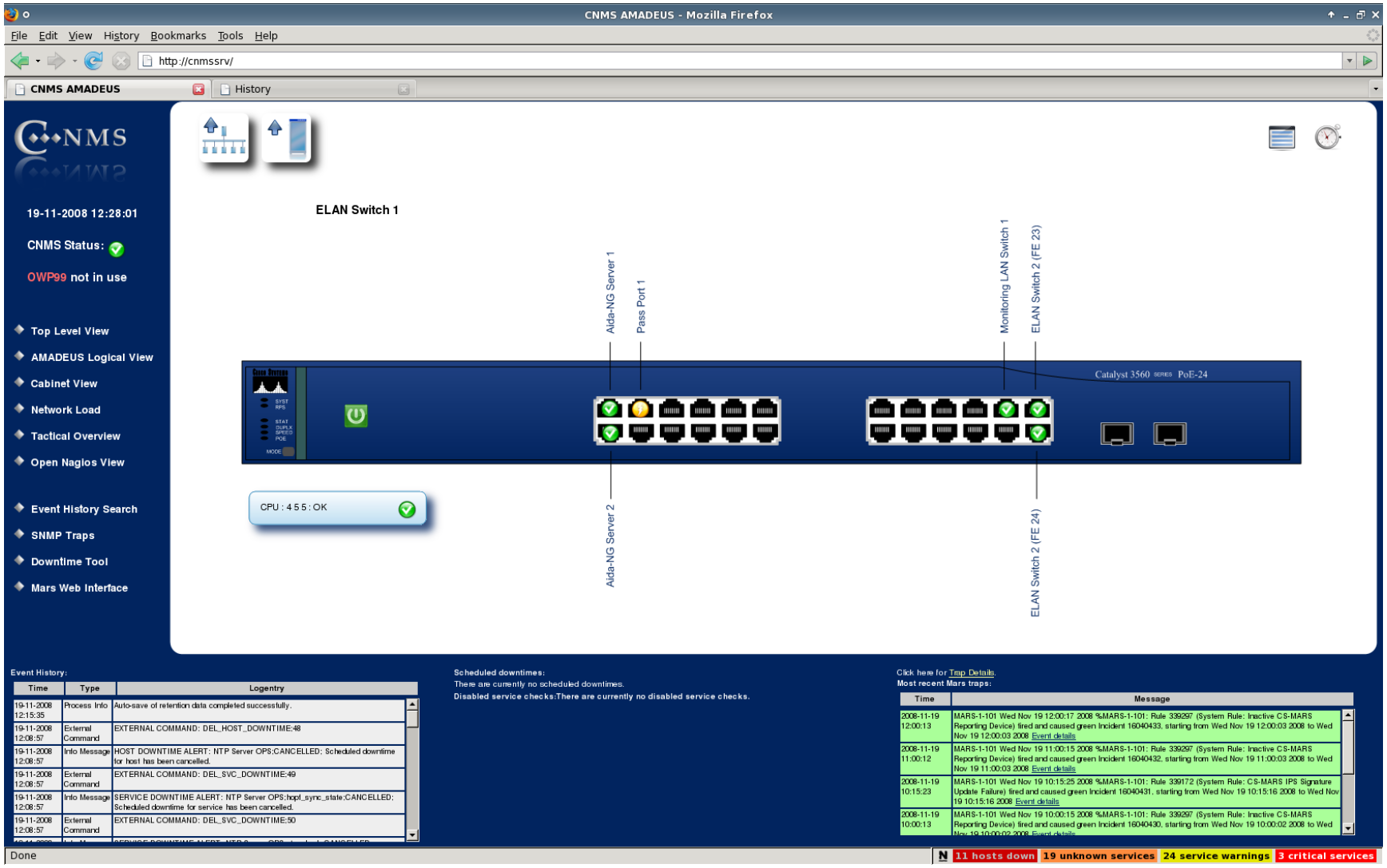
CNMS – Central Supervision of Components – Logical View



Central Supervision – Cabinets



CNMS – Central Supervision of Components - Switches

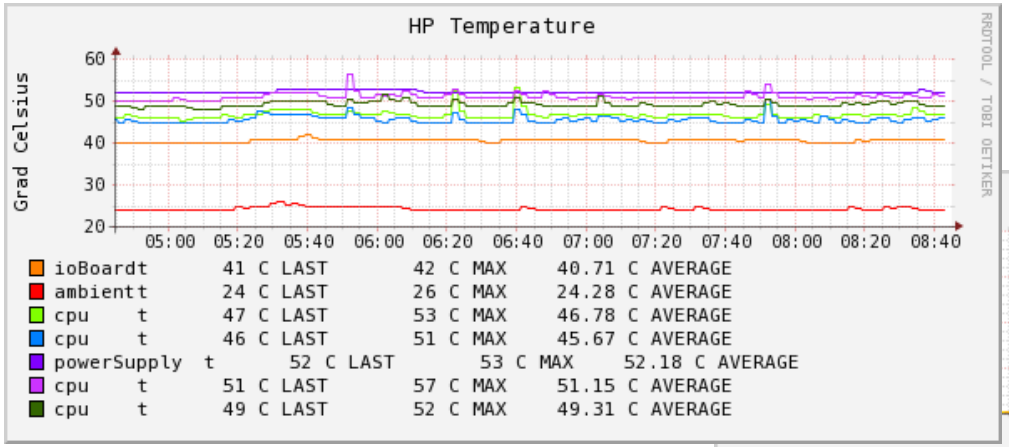


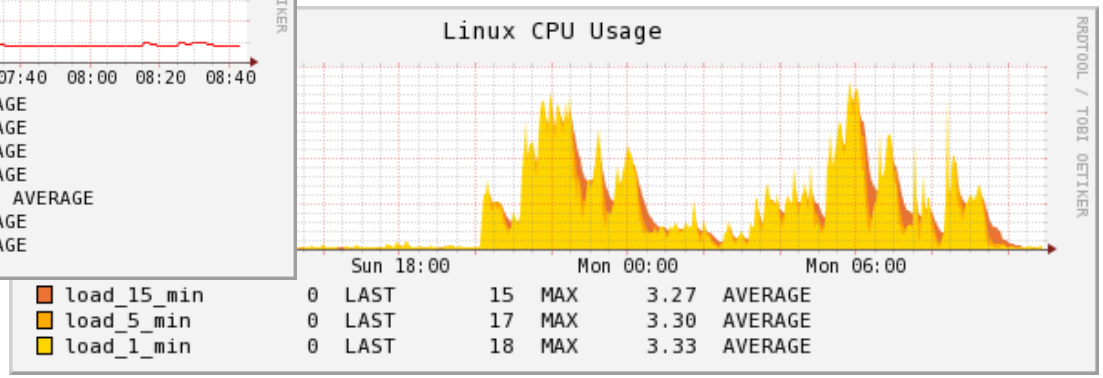
CNMS – Central Supervision of Remote Terminals

Visualisation of Performance Data

- CPU Load
- Memory Usage
- Temperature
- Availability Figures
- Number of pending messages
- ……

Performance graphics are generated automatically





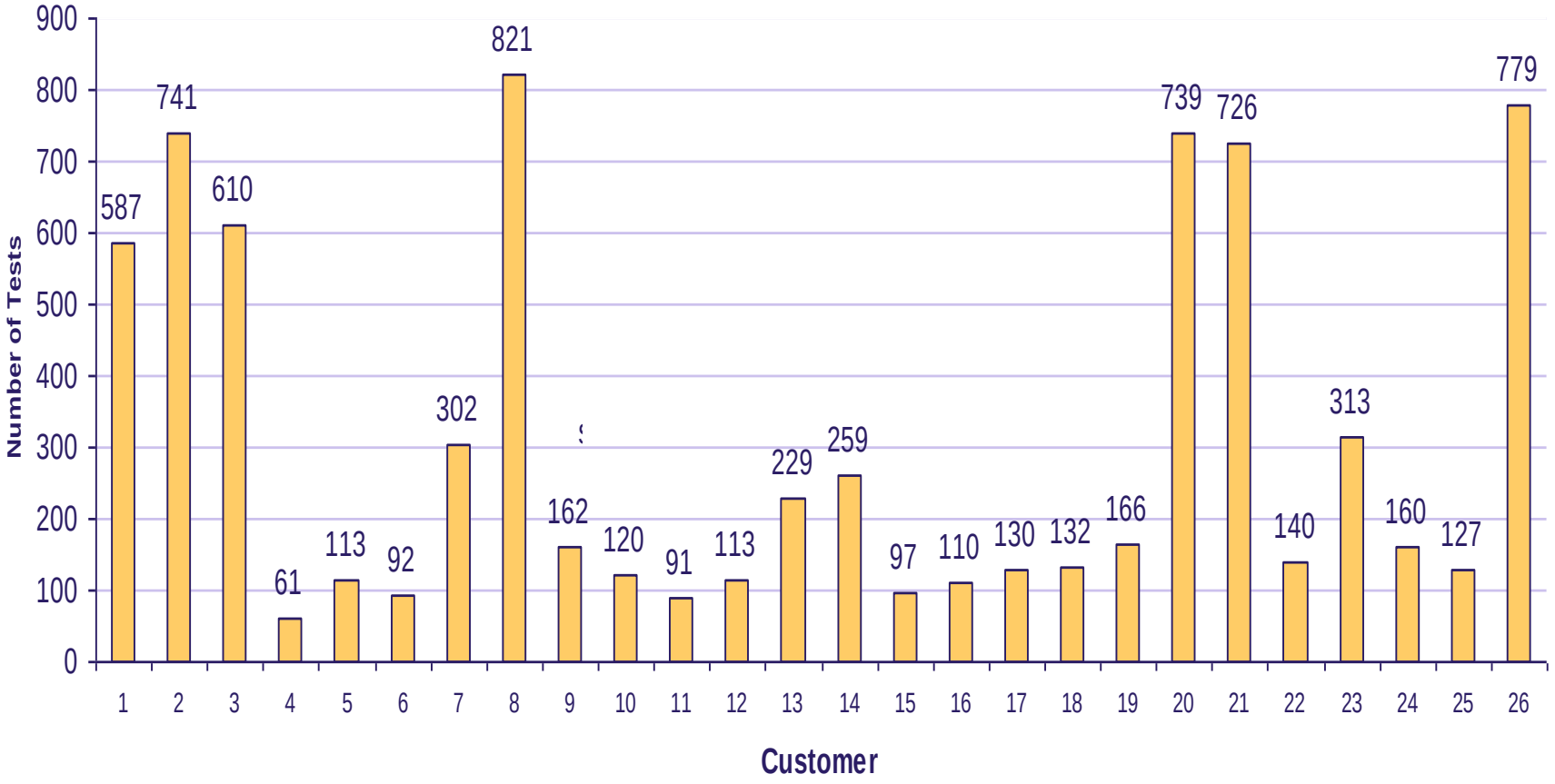
Product Maturity

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

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 **15000** 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).

COMSOFT – AMHS Conformance Testing

COMSOFT AMHS Test Suite

AMHS Conformance Verification

AMHS Implementation under Test

- ✓ Full Support of both, regional EUR + ASIA/Pacific AMHS Manuals (ATN/OSI, ATN/IPS)
- ✓ 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

Germany, EUROCONTROL, Netherlands, United Kingdom, Belgium, France, Suisse, Lithuania, Poland, Slovakia, Bosnia & Herzegovina, Serbia, Macedonia, Libya, Egypt, Saudi Arabia, Zimbabwe, Morocco, Emirates, Oman, Qatar, Pakistan, India, Macau, Singapore, Australia, Fiji, Hong Kong, Peru, Colombia, Angola, Nigeria, Kuwait, Mongolia

COMSOFT – Experience in AMHS Interoperability Tests

- **ECG**

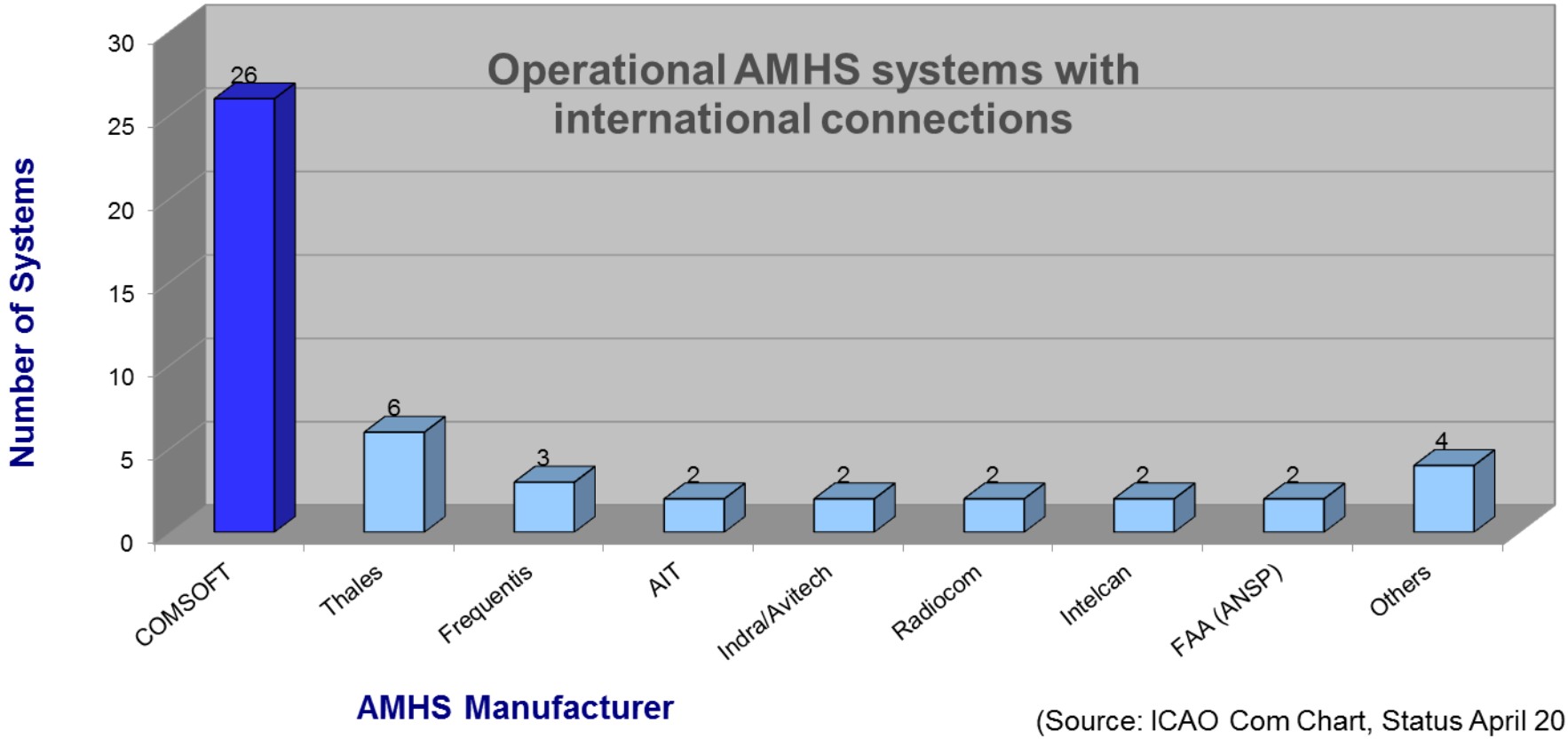
  The COMSOFT ECG is used as AMHS Reference System by EUROCONTROL to perform interoperability tests for the evaluation of other AMHS products

- **Customer Support**

  COMSOFT is prepared to support its customers for the setup and execution of Interoperability Tests with adjacent centres:

- ✓ Test Harness (System Configuration, Test Messages, etc.) in accordance with AMHS Manual is available
- ✓ Test Documentation (Configuration, Test Suites, etc.) is available
- ✓ COMSOFT can provide
  - remote support during test phase (Option A)
  - on-site support during test phase (Option B)

Countries operating international AMHS Connections



(Source: ICAO Com Chart, Status April 2015)

COMSOFT – Customer Base

Our Success

Customer Base - References/Projects in Europe

NATS, UK
Locations: Heathrow and Gatwick
2 redundant **AMHS**/CDIN/AFTN systems
1 redundant **AMHS**/CDIN/AFTN test system

EUROCONTROL
Location: Brussels
ECG Core Software Package
EUROCONTROL AMHS Reference System

EUROCONTROL, CFMU
Locations: Brussels and Paris
4 redundant **AMHS**/CDIN/AFTN systems

Belgocontrol, Belgium
Location: Brussels
1 redundant operational **AMHS**/CIDIN/AFTN system
1 redundant contingency **AMHS**/CIDIN/AFTN system
1 redundant test/training **AMHS**/CIDIN/AFTN system
45 CADAS **AMHS UA**/AFTN User Terminals

EUROCONTROL
Location: Maastricht UAC
1 redundant **AMHS**/AFTN/CIDIN system
1 redundant test/development system

LVNL, the Netherlands
Location: Amsterdam
1 redundant **AMHS**/AFTN/CIDIN system
1 redundant test/development system

DSNA (Project: MESANGE), France
Location: Bordeaux and 10 remote sites
1 redundant operational **AMHS**/CIDIN/AFTN system
1 redundant contingency **AMHS**/CIDIN/AFTN system
1 redundant test/training **AMHS**/CIDIN/AFTN system
1 redundant **AMHS**/CIDIN/AFTN development system
16 concentrators installed on 10 remote sites
up to 150 CADAS **AMHS UA**/AFTN User Terminals

skyguide (Project: MESANGE), Switzerland
Location: Geneva
1 redundant operational **AMHS**/CIDIN/AFTN system
1 single contingency **AMHS**/CIDIN/AFTN system
1 redundant test/training **AMHS**/CIDIN/AFTN system
up to 40 CADAS **AMHS UA**/AFTN User Terminals

Sakaeronavigatsia Ltd, Georgia
Location: Belgrade
1 redundant **AMHS**/AFTN switch
15 CADAS **AMHS UA**/AFTN Terminals

Polish Military, Poland
Location: Warsaw
1 redundant **AMHS**/AFTN switch
63 CADAS **AMHS UA**/AFTN Terminals

PANSA, Poland
Location: Warsaw
1 redundant **AMHS**/CIDIN/AFTN switch

Russian Federation (FGUP RTC AISS)
Locations: Rostov/Don
1 redundant CDIN/AFTN system
1 AFTN concentrator at a remote site

DFS, Germany
Locations: Frankfurt and Langen
2 redundant **AMHS**/CDIN/AFTN systems
1 redundant AMHS/CDIN/AFTN test system

LPS, Slovakia
Location: Bratislava
1 redundant operational **AMHS**/CIDIN/AFTN systems + **1** single contingency **AMHS**/CIDIN/AFTN system
1 redundant disaster recovery **AMHS**/CIDIN/AFTN system + **1** single contingency **AMHS**/AFTN/CIDIN/ system
16 CADAS **AMHS UA**/AFTN Terminals

FEDCAD, Bosnia and Herzegovina
Location: Sarajevo and Mostar
2 redundant **AFTN/AMHS**/**AIM** Systems
17 CADAS AFTN Terminals

RSCAD, Republic of Srpska
Location: Banja Luka
1 redundant **AFTN/AMHS** Systems
5 CADAS AFTN Terminals

SMATSA, Serbia and Montenegro
Location: Belgrade
1 redundant **AMHS**/AFTN switch
1 **AMHS**/AFTN test/training system
34 CADAS **AMHS UA**/AFTN User Terminals

MCAA, Macedonia
Location: Skopje and Ohrid
1 redundant **AMHS**/AFTN system
23 CADAS AFTN Terminals

Aeronavigacia, Lithuania
Location: Belgrade
1 redundant **AMHS**/AFTN switch
15 CADAS **AMHS UA**/AFTN Terminals

Bulatsa, Bulgaria
Location: Sofia
1 redundant **AMHS**/AFTN switch
20 CADAS **AMHS UA**/AFTN Terminals

Croatia Control, Croatia
Location: Zagreb
1 redundant **AMHS**/AFTN switch
1 **AMHS**/AFTN test/training system
5 CADAS **AMHS UA**/AFTN User Terminals

Customer Base - References/Projects in Middle East & Africa

ONDA, Morocco
Location: Casablanca
1 redundant operational **AMHS**/CIDIN/AFTN system
1 AMHS/CIDIN/AFTN Test/Training System
5 CADAS **AMHS UA**/AFTN User Terminals

CAA, Libya
Location: Tripoli, Benina, Metiga, Sirt, Sheba
1 redundant **AMHS**/CIDIN/AFTN/**AIM** system and 5 gateway sites with 30 CADAS AFTN/**AIM** User Terminals

NAMA, Nigeria
Location: Lagos, Kano
1 redundant **AMHS**/AFTN/**AIM** System
1 redundant **AMHS**/AFTN/**AIM** Test System
120 CADAS **AMHS UA**/AFTN Terminals

ENANA, Angola
Location: Luanda, Limbago
1 redundant AMHS/**AIM** System
1 test/training AMHS/**AIM** System
50 CADAS AMHS UA/AFTN/**AIM** User Terminals

NANSC, Egypt
Location: Cairo
1 redundant **AMHS**/CIDIN/AFTN system
Up to 200 CADAS **AMHS UA**/AFTN Terminals

GCAA, Abu Dhabi
Location: Abu Dhabi, UAE
2 redundant **AMHS**/CIDIN/AFTN systems
20 CADAS **AMHS UA**/AFTN User Terminals

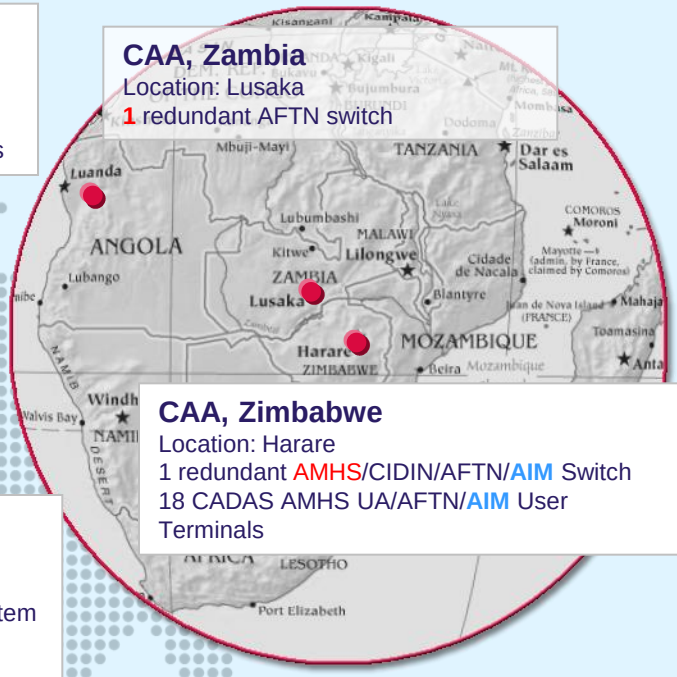
DGMAN, Oman
Location: Muskat
2 redundant **AMHS**/AFTN/**AIM** system
1 contingency/test/training **AMHS**/AFTN/**AIM** System
1 test/training **AIM** System
25 CADAS **AMHS UA**/AFTN User Terminals

QCAA, Oatar
Location: Doha
1 redundant **AMHS**/AFTN/**AIM** System
1 redundant **AMHS**/AFTN/**AIM** Test System
up to **60** CADAS **AMHS UA**/AFTN Terminals

DCA, Dubai
Location: Dubai, UAE
1 redundant AFTN switch

TCAA, Tanzania
Location: D'aressalam
1 redundant **AMHS**/AFTN System
21 CADAS **AMHS UA**/AFTN Terminals

CAA, Zambia
Location: Lusaka
1 redundant AFTN switch



CAA, Zimbabwe
Location: Harare
1 redundant AMHS/CIDIN/AFTN/**AIM** Switch
18 CADAS AMHS UA/AFTN/**AIM** User Terminals

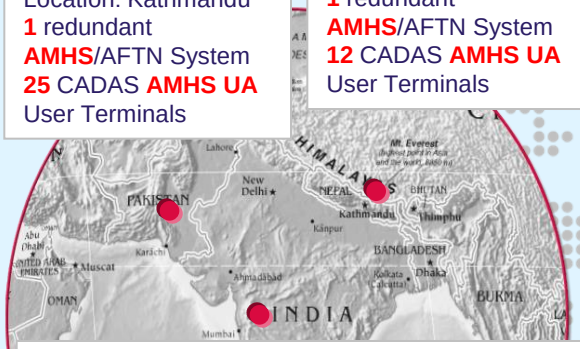
GACA, Saudi Arabia
Location: Jeddah and Riyadh
1 redundant **AMHS**/CIDIN/AFTN System
1 single **AMHS**/CIDIN/AFTN Backup System
Up to 60 local CADAS **AMHS UA**/AFTN Terminals

DGCA, Kuwait
Location: Kuwait City
1 redundant **AMHS**/AFTN/**AIM** System
1 contingency **AMHS**/AFTN/**AIM** System
1 test/training **AMHS**/AFTN/**AIM** System
12 CADAS **AMHS UA**/AFTN/**AIM** Terminals

Customer Base - References/Projects in the Asia Pacific Region

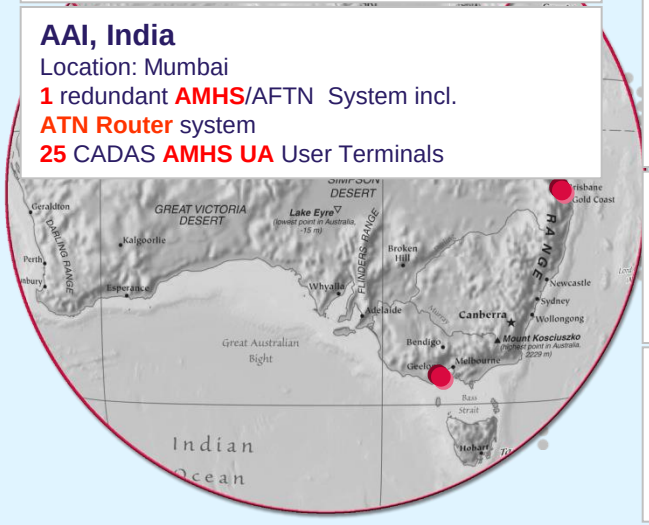
CAAN, Nepal
Location: Kathmandu
1 redundant
AMHS/AFTN System
25 CADAS **AMHS UA**
User Terminals

CAAB, Bangladesh
Location: Dhaka
1 redundant
AMHS/AFTN System
12 CADAS **AMHS UA**
User Terminals



PCAA, Pakistan
Location: Karachi
1 redundant **AMHS**/AFTN/**AIM** System incl.
ATN Router
46 CADAS **AMHS UA** User Terminals

AAI, India
Location: Mumbai
1 redundant **AMHS**/AFTN System incl.
ATN Router system
25 CADAS **AMHS UA** User Terminals



CAAS, Singapore
Location: Singapore
1/1 redundant/single **AMHS**/AFTN+**ATN Router** system
12 CADAS **AMHS UA**/AFTN User Terminals

ATO, Philippines
Location: Manila
1 redundant **AMHS**/AFTN incl. **ATN Router** system
40 CADAS **AMHS UA**/AFTN Terminals

CAAM, Macau
Location: Macau
1 redundant **AMHS**/AFTN incl. **ATN Router** system
14 CADAS **AMHS UA** User Terminals

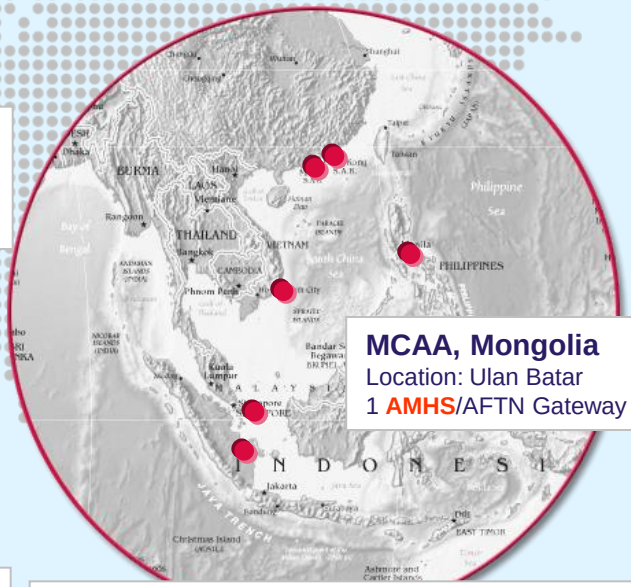
APII, Indonesia
Location: Palembang
1 redundant AFTN switch
10 CADAS AFTN User Terminals

DOTC, Indonesia
Location: Djakarta
1 redundant **AMHS**/AFTN/**AIM** Test and Reference System
10 CADAS **AMHS UA**/AFTN/**AIM** Terminals

ASA, Australia
Location: Brisbane, Melbourne
2 redundant **AMHS**/AFTN incl. **ATN Router** systems
1 redundant test/development system
up to 60 CADAS **AMHS UA**/AFTN User Terminals

Fiji
Location: Nadi
1 redundant **AMHS**/AFTN/**AIM** +**ATN Router** systems
1 single **AMHS**/AFTN/**AIM** test/training system
16 CADAS **AMHS UA**/AFTN/**AIM** User Terminals

HKCAD, China
Location: Hong Kong
2 redundant **AMHS**/AFTN systems (OPS/BCK)
up to 150 CADAS **AMHS UA**/AFTN User Terminals



MCAA, Mongolia
Location: Ulan Batar
1 **AMHS**/AFTN Gateway

Airways New Zealand
Location: Christchurch (OPS, DEV), Auckland (BCK)
3x redundant **AFTN/AMHS** Systems (OPS, BCK, DEV)
Up to 120 CADAS **AFTN/AMHS UA** User Terminals

Papua New Guinea
Location: Port Moresby 2x redundant **AFTN/AMHS System** (OPS, BCK)
12 CADAS **AFTN/AMHS UA** User Terminals

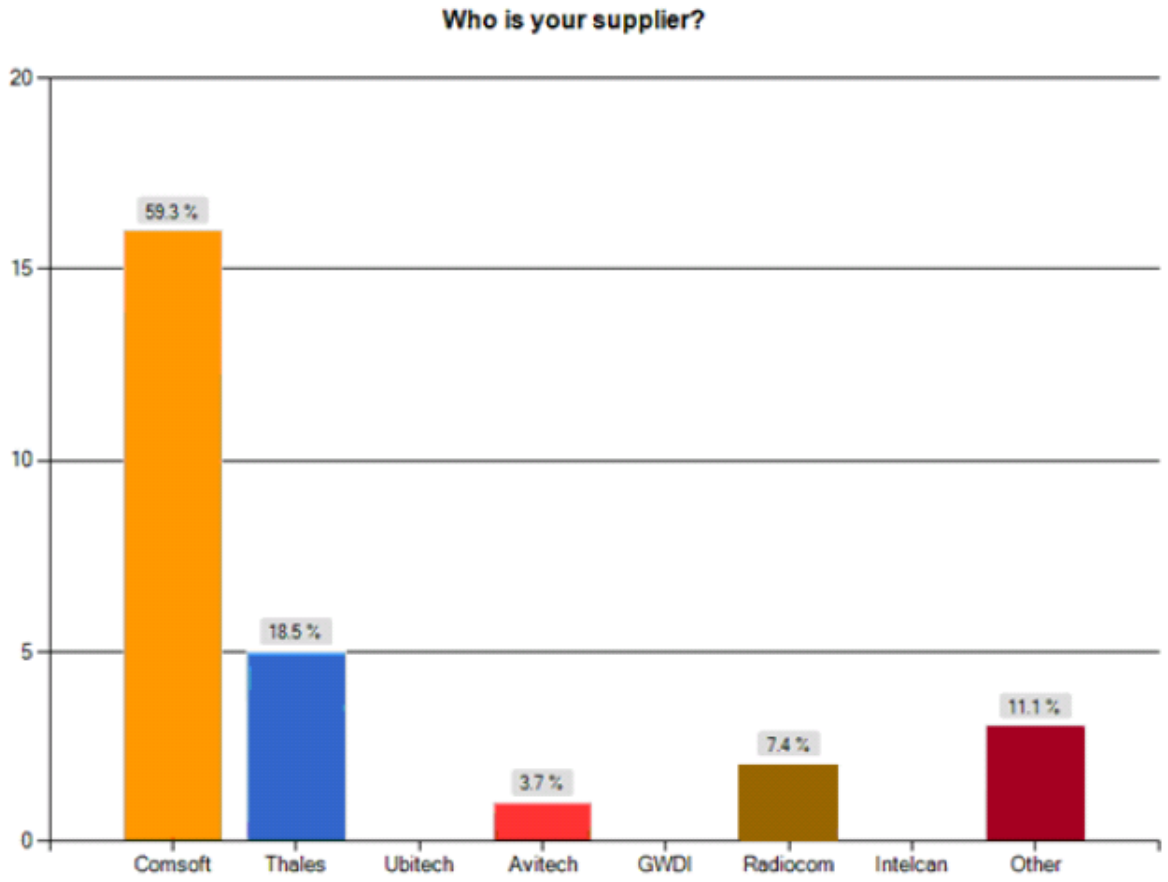
Customer Base – References/Projects in South America/Caribean

U.A.E.A.C, Colombia
Location: Bogota and 6 domestic local and remote sites
1 redundant AFTN/**AMHS** system
63 CADAS **AMHS UA** User Terminals

CORPAC, Peru
Location: Lima and 31 domestic local and remote sites
1 redundant AFTN/**AMHS** system with **AIM** extension
86 CADAS **AMHS UA/AIM** User Terminals

TTCAA, Trinidad-Tobago
Location: Port of Spain and 14 Caribbean
1 redundant AFTN/**AMHS** system
46 CADAS **AMHS UA** User Terminals

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



AIR TRAFFIC CONTROL KNOW-HOW

COMSOFT – AMHS Activities 2010 - 2013

In the period from 2010 – today COMSOFT was extremely successful and won multiple AFTN/AMHS customers:

54 ANSPs are equipped with the AIDA-NG/CADAS AFTN/AMHS

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

CAUG – COMSOFT AIDA User Group

COMSOFT
CAUG
AIDA User Group