Infrastructure Management

AMPTRAC™

Intelligent Infrastructure Management System (IIMS)
Why IIMS?

In today’s fast growing and changing IT infrastructure in enterprises, the traditional process based infrastructure management does not fulfil the requirements anymore. The main lacks are

- Maintenance of connectivity records is time consuming & expensive
- Record accuracy & cycle time reflects a limit value
- Difficulty in controlling sub-contractors
- Possible & likely reduction infrastructure flexibility & effectiveness/response times

The advantages of IIMS

High end intelligent infrastructure management systems (IIMS) like AMP NETCONNECT’s AMPTRAC have been designed to remove the described limitations. As an integrated part of the enterprise’s network management, AMPTRAC offers the required flexibility and automation resulting in a significant reduction of the Total Cost of Ownership (TCO) of the network. The key elements for achieving this are

Real Time Documentation
- Self discovers infrastructure ports & their associated connectivity
- Registers the status of every port & when patching occurs
- Historical log file of every ‘event’

Network Control
- Remote ‘real-time’ fault management
- Responds to unauthorized actions & events by triggering alarms/events

Optimized Configuration-, Change and Asset-Management
- Auto creates & completes authorized work orders
- Provides detail, location, utilization & audit trail of all network assets
- Integration with Help Desk, NMS, PBX, BMS/FM & Asset Management

Reduced TCO through Network Control
Successful IT is increasingly depending on the cooperation of different services and competencies within the IT-department. In order to control those combined IT services so-called IT-processes have been developed and collected as ITIL (IT Infrastructure Library), a framework of best practices for IT-processes. As a vital part of ITIL, IT-Service Management is recognized as the central organisational instrument for aligning IT with business processes and for controlling IT services according to customer needs.

The international standard ISO/IEC 20000:2005 bridges the gap between ISO 9000:2000 focusing on the setup of IT quality management systems for the successful implementation of IT service management according the ITIL best practices. Moreover, it gives recommendations for the evolution of IT service management within organizations in order to raise the quality of service.

Best practices in projects all over the globe show significant improvement offered by IIMS solutions using a combination of software and hardware in order to integrate the physical layer (the cabling infrastructure) into network management and other IT processes. The picture above highlights in orange the IT processes where those solutions show superior performance and cost savings.
AMPTRAC – The Missing Link

AMPTRAC™ is the missing link to bridge between PHYSICAL and LOGICAL Layer

Layer 7: Application
Layer 6: Presentation
Layer 5: Session
Layer 4: Transport
Layer 3: Network
Layer 2: Data Link
Layer 1: Physical

AMPTRAC links data from the Logical and Physical layer together in Real-Time to give a true end-to-end view of the true topology. This is vital in determining the physical location of any equipment.

The additional Value of AMPTRAC
- Detection of all devices in the network
- Display and Documentation of the physical “End-to-End” infrastructure
- Monitoring of all Connections and Events
- Detection, Report, Alarm and Warning Actions for all changes related to Devices, their physical connections and eventually cut of links
- Adds Layer 1 Information to the Network Management
- Adds Layer 1 Information to the Device Management

AMPTRAC bridges between the various Management Systems and is based on ONE centralised, automated and intelligent infrastructure Data Base.

Layer 1 management reduces downtime
Realtime Overview & Documentation is Key

In many industries data network downtime is business critical! Depending on the importance of the network as a daily business tool, the hourly costs can be extra-ordinary high (e.g. in Banking & Insurance, Airports, ISPs, etc.).

- “72% of all business critical systems experience 9 hours of downtime each year!” (The Standish Group)
- “There’s an average loss of $90,000 per hour of downtime for business-critical systems!” (Contingency Planning Research)

‘Structured cabling systems don’t break down. They simply go out of control!’ (Network administrator Xxx)

- “59% of network problems are directly related to the physical infrastructure and its connections!” (The Gartner Group)
- “70% of all network failures are attributable to network cabling!” (LAN Technology)

The solution: Accurate, reliable documentation by AMPTRAC helps to recover from any problem as quickly as possible by tremendously cutting down the debugging time.
Effective Change- and Configuration Management

Change Management

The purpose of IT Change Management is to prove, to organize, to approve, to control and to document all planned changes in the network. Additionally, the Change Management prevents or reduces malfunctions or downtime caused by the actual change resulting in lowering the network operating costs and increasing the quality of services.

The World Keeps Changing – the Network too!

During the Life Time of a Network Cabling System:

- approx. 30–40% of the Users move each Year (Source: Frost and Sullivan)
- LAN Electronics are replaced up to 3 times
- Computers are replaced up to 4 times
- Software is updated up to 5 times
- Offices, complete departments or even entire factories are restructured

Issues with Moves, Adds and Changes (MAC’s)

- Labour & content intensive
- Accurate documentation required
- Safe keeping of records
- Can be compromised by:
  - Human error
  - Staff turnover
  - Unauthorized changes
  - Physical damage
- -> Errors cause downtime! Downtime costs money!

<table>
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<tr>
<th>Hours Down/Year/Service</th>
<th>Average (&lt; 98 %)</th>
<th>Outstanding (99.5 %)</th>
<th>Best in Class (99.9 %)</th>
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<td></td>
<td>&gt; 175</td>
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<td></td>
<td>&gt; 250</td>
<td>&lt; 50</td>
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AMPTRAC eliminates all problems with MACs by offering a controlled workorder process combined with automatic change control and real time documentation.

Only a controlled change is a good change
Effective Change- and Configuration Management

The overall purpose of the Configuration Management Database (CMDB) is the collection of data about all assets & configurations and offering this information to other IT processes. Hence, the CMDB is a logical image of the IT-Infrastructure. AMPTRAC supports the CMDB by adding additional connectivity and networking device information resulting in the following enhancements:

<table>
<thead>
<tr>
<th>General CMDB Purpose</th>
<th>AMPTRAC enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning of infrastructure changes</td>
<td>Provides real-time location centric information for every IP and PABX asset</td>
</tr>
<tr>
<td>Identification of assets</td>
<td>Provides connectivity records, user name and cost center information for every defined asset</td>
</tr>
<tr>
<td>Control of network &amp; infrastructure</td>
<td>Allows the definition of completely configurable Dictionaries bringing additional information to the networking assets to identify hardware and software configuration and to assist with upgrading of hardware, firmware and software</td>
</tr>
<tr>
<td>Getting Status information of the entire network</td>
<td>Powerful tools to allow device based Searching, Tracing &amp; Reporting</td>
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</table>

Only a controlled change is a good change
Manager has budget responsibility and assigns tasks to the technicians.

Planner receives trouble tickets and generates work order for resolution.

Help Desk receives user requests and releases trouble tickets.

- Administrator: Documentation, Management and Supervision in Real-time
- User: Automated Management of Moves, Add and Changes with Auto-routing

Change Management: The people side
AMPTRAC Analyser monitors connections in real-time. Interactive support of the technician via display and keypad during the work in front of the rack.

AMPTRAC Ready! Patch Panels are monitored via sensor technology by the analyser. The AMPTRAC Ready! Strategy allows cost efficient migration from a standard cabling system to an intelligent infrastructure.

AMPTRAC Infrastructure Manager Software displays all infrastructure information at once (patch connections, end devices) and optimises/automates the change management. Unauthorised events create alarms. Extensive reporting tools make IT costs transparent.

Central Database (CMDB) stores all end-to-end infrastructure information.

Technician executes work actions according to graphical and textual instructions.

Real-time Auto-routing

Change Management: The system side
Capacity management

IT Capacity Management focusses on today’s and especially tomorrow’s requirements of IT capacity and assures this. The main targets are:

- Economic capacity planning
- Capacity preservation for the services
- Projection and trend analysis of capacity utilization
- Analysis of service performance & throughput
- Conflict management in case of usage of shared resources

AMPTRAC Virtual Wiring Closet (VWC)

- Rack Visualisation
- shows Availability of Height Units in the Rack
- Displays available Ports of Switches and Panels
- allows Capacity Analysis and Planning
- shows the physical Position of the Mounted Devices
- displays the Port Assignment of Panels and Switches
- displays the Patch Cords, their Type, Length, Connector and Position

Input

- Business Data
- Service Data
- Technical Data
- Financial Data
- Load Data

Output

- Service Reports
- Special Reports
- Capacity forecast
AMPTRAC adds value to IT related financial services

- By adding fully automated, real-time asset location information
- By providing a searchable, reportable log of what has happened to asset over their life-time
- By populating asset dictionaries with 100% accurate, cost centre, user name, switch port information
- Delivering Recharges via asset register information, SLA monitoring
- Customisable Reporting (combined with Dictionaries) allows
- Port utilisation
- Move and change activity, cycle time to WO complete
- By user, by department, by asset, by cost centre etc
- By being able to take a Snapshot of the asset base – instant audit

AMPTRAC Enhanced Security features

The objective of the AMPTRAC enhanced security features is to augment existing security systems with real-time, location specific information. How is that working?

1. Mac Address Monitoring
   - Identification and location of un-authorised network access (iDiscover)
     - Forward this ‘event’ as a TRAP to a network manager
     - Execute local scripts e.g. email, send SMS, close switch port

2. Event triggered security configurations
   - Theft Control – traceable information in the log file. Contains time stamped events that can be searched e.g. at what time did an asset disappear from the network
   - Cameras – to capture unauthorised patching events

3. Access Monitoring
   - Restriction of login to the network from to defined physical locations (iLogin)
The extensive feature list of the AMPTRAC IIM

System allows enterprises a better planning and control of all network infrastructure related issues:

- Taking the guess work out of troubleshooting and moves, adds & changes (MAC’s)
- Reducing the consequences of mistakes
- Identifying used and spare port (switches or hubs)/position (patch panel) capacity
- Centralizing infrastructure management

All these mentioned advantages result in significant saving of operating costs:

- Lowers operating cost 15–30% by reducing required time to perform each MAC. (avg. MAC change – 30 min; AMPTRAC can save 10 min per MAC)

- Lowers operating cost by 1–10% by increasing existing network investment utilization
  - Standard cabling system port utilization: 85–90%
  - AMPTRAC port utilization: 100%
AMPTRAC System Overview

AMPTRAC Hardware Overview

AMPTRAC Basic Operating Principle

- Robust 9th wire in patch cords establishes open and closed circuits which can be monitored
- Analyzer monitors open/closed circuit and tracks connectivity
- Analyzer sends data to AMPTRAC IM Software database

AMPTRAC System and Components

- AMPTRAC Analyzer: The Device that tracks the connections between sensor contacts and communicates with AMPTRAC IM Software database
- AMPTRAC I/O cables: Connect sensor contacts (patch panel and electronics) to analyzer
- AMPTRAC Patch Panels: Patch panels with integrated sensor contacts
- AMPTRAC Sensor Strips: Sensor contacts that are applied to network electronics port fields
- AMPTRAC Patch Cords: Interconnect between patch panel & switch ports and have an integrated ‘9th’ wire that is used to make connection between sensor contacts
- IM Software: Software programmed by iTRACS, manages the analyzers and correlates the connectivity information from the analyzers to a database model of the customer infrastructure
- AMPTRAC Server: A higher level PC (often Rack mounted) that runs the IM Software

Physical Layer easily added to CMDB
AMPTRAC Integration partner network

ONE SUPPLIER
ONE SOLUTION

Certified AMPTRAC System Integrator

ONE SUPPLIER
ONE CONTACT

Enduser

ONE SUPPLIER
ONE PARTNER

ALL OVER THE WORLD

Worldwide Competence
Why using AMPTRAC Intelligent Infrastructure Management System?

The AMPTRAC Infrastructure Manager bridges the gap between Network Management Software and Physical Layer Management, and concurrently revolutionizes the way networks are controlled and managed. AMPTRAC IM illustratively shows the physical topology of your data center, communication rooms and wiring closets, while at the same time helping you to manage and troubleshoot your network connectivity with real-time monitoring and documentation.

Among many other benefits the AMPTRAC System will:
- increase your MAC accuracy and productivity
- reduce your downtime
- increase your network security
- reduce costly mistakes
- improve your asset utilization

Or simply said, turn THIS into THAT!
### AMP NETCONNECT Regional Headquarters:

<table>
<thead>
<tr>
<th>Region</th>
<th>Location</th>
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<th>Fx:</th>
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<tbody>
<tr>
<td>North America</td>
<td>Harrisburg, PA, USA</td>
<td>+1-800-553-0938</td>
<td>+1-717-986-7406</td>
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<tr>
<td>Latin America</td>
<td>Buenos Aires, Argentina</td>
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<td>Europe</td>
<td>Kessel-Lo, Belgium</td>
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<tr>
<td>Mid East &amp; Africa</td>
<td>Cergy-Pontoise, France</td>
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<td>Pacific</td>
<td>Sydney, Australia</td>
<td>+61-2-9554-2600</td>
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### AMP NETCONNECT in Europe, Mid East, Africa and India:

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<td>Austria</td>
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