Grid Solutions
a GE and Alstom joint venture

AUTOMATION SUPPORT AND SERVICES SOLUTIONS

Support & Services

System upgrade and migration

Grid Solutions helps you to preserve your investment with solutions tailored to your needs and reap the benefits of the latest technology to optimize your asset

Optimize your investment, improve your system, control and monitor with reliable performance

If your installation is not updated regularly, you run a number of risks: flat performance, operational problems due to system aging, out-of-date technology or its inefficient use, and reduced effectiveness and capacity.

OUR ROLE

- Anticipate and plan milestones to manage obsolescence, maintain system availability and reliability and improve performance and functionalities.
- Assist customers with a long-term vision to preserve their investment.

LOOKING AHEAD TOGETHER

Conscious of your outage-time and budget constraints, we focus our services around these two key elements, based on Total Cost of Ownership.

Furthermore, our solutions include cyber security on request for existing or new installations.

YOUR DRIVERS

You have many reasons to keep your installation at the cutting edge of technology, and our role is to support you in doing so:

- Issues of obsolescence, complexity, cost of maintenance, etc
- Sizing and performance
- Product life-cycle policy and product roadmaps
- Extending system life (with OPEX) rather than buying a full new system (CAPEX issues)
- Operational changes: new feeders,/ new interconnections
- Change of business environment: company mergers, reorganizations, new regulations
- New technology
- Standards compliance
- Security

The concept of asset management promotes continuous technical evolution and keeps the system (software, hardware) technologically up to date.

CUSTOMER BENEFITS

- Total Cost of Ownership is spread over the full lifespan
- Avoidance of significant costs associated with full-scale system replacement
- Up-to-date functionalities
- Critical security improvements incorporated
- New efficiency features and productivity enhancements
- Reduction of costs associated with obsolete systems
- Future readiness

UPGRADE

Grid Automation recommends upgrading systems to the latest version still supported by R&D. It's a way of keeping your installation apace with technology, continuously enhancing performance and spreading investments over the lifetime.

Benefits

- Same technology
- No cubicle recovery wiring
- No cabling modifications
- Database upgrade simple and fast

Requirement

Need to build substantial stocks for legacy systems

MIGRATION

Based on your strategy, an individualized evolution plan will establish the recommended migration path and its main milestones. It may concern all or part of your substations depending on your constraints and budget.

Why

- Anticipating obsolescence issues
- Readiness for possible extensions with new technology
- Ethernet process bus communication. IEC 61850 protocol for new protection relays
- New SCADA protocols

How

- Step-by-step implementation philosophy
- Outage limitation
- Reduce engineering & commissioning implementation time

Benefits

- Latest technology
- Maintenance simplification
- Investment optimization
- Flexibility to increase capacity
- Migration effort spread over time
- New operational needs combined with Grid Automation's technology roadmap to continuously deliver optimization and functionality enhancements.

Legacy Converter Adapters developed: LCA2000 for SPACE2000 and LCA3020 for PSCN3020's BCU migration

Main stages of migration path consists in:

- Replacing the existing ring by an IEC 61850 network
- Replacing legacy system "head-end level" (PO, GTW, printers, UPS, ...) by DS Agile and the acquisition module by C264 without any cubicle wiring modification thanks to LCA, Legacy Converter Adapters

- Migrating legacy systems database to DS Agile datalist IED replacement is highly recommended in the migration solution, particularly for communication protocols.

OUR SERVICES

We support our customers in many ways: maintaining the legacy systems, defining spares required to assure equipment uptime throughout its lifespan, pinpointing obsolescence issues, proposing evolution paths taking customer constraints into account as well as version compatibility. Our solutions can be customized with specific developments to meet specific needs.

We leverage resources to develop and test technical solutions or manage obsolescence around PSCN 3020 systems (V5-8), SPACE 2000 (V2.5-2.12), PACiS (up to V4.6) or other legacy systems where technical solutions are built for replacement for instance. This is done on dedicated platforms before customer submission.

If there is no maintenance contract with Grid Solutions, we first propose a site survey to ascertain the current situation and the status of installed equipment.

Then we can offer a migration solution focused on outage time minimisation and budget optimisation and allowing the customer to derive maximum benefit from Grid Solutions's state-of-the-art technology: DS Agile system or DAPserver

Once all key information is available (database, synoptic and wiring), Grid Solutions can build a migration plan with a minimum of few wiring modifications.

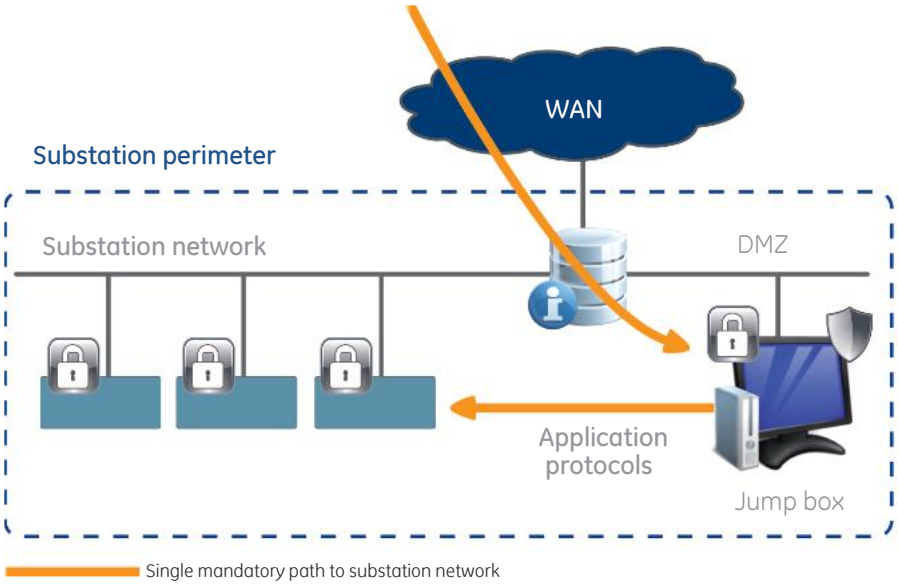
EXTENSION

In the case of a substation extension, the legacy systems can also be extended accordingly. Grid Solutions recommends the use of this opportunity to upgrade to latest software version or to migrate to a DS Agile or DAPserver solution.

CYBERSECURITY

It is crucial to enhance cyber security in existing substations to minimize impact on the automation and control system. The solution consists in enhancing the substation IP network security without changing the substation automation system software, as well as minimizing the management overhead.

After the first step of hardening the operating system, a second security layer is added to protect the system from malware. This stage enforces an application whitelist which uses resources during the starting phase of a process only, whereas an antivirus regularly scans disks and memory. At the same time, software patch updates can be limited, therefore reducing deployment overhead.



To protect the automation system configuration and setting files, integrity control software is added. The remote access to the substation has to be done first through a jump box installed in the substation DMZ which has access to the substation network. It is used to access the critical elements of the operational network. These elements are protected against attacks with hardening, whitelisting, memory protection and file integrity.

The access point can be a modem, an Ethernet router or an Ethernet VPN. It protects the substation access and restricts communication to the jump box only on specific protocols (remote desktop and secure file transfer protocol).

Leverage state-of-the-art technology and the convenience of remote access while complying with substation security

Grid Automation's Expertise Trainings

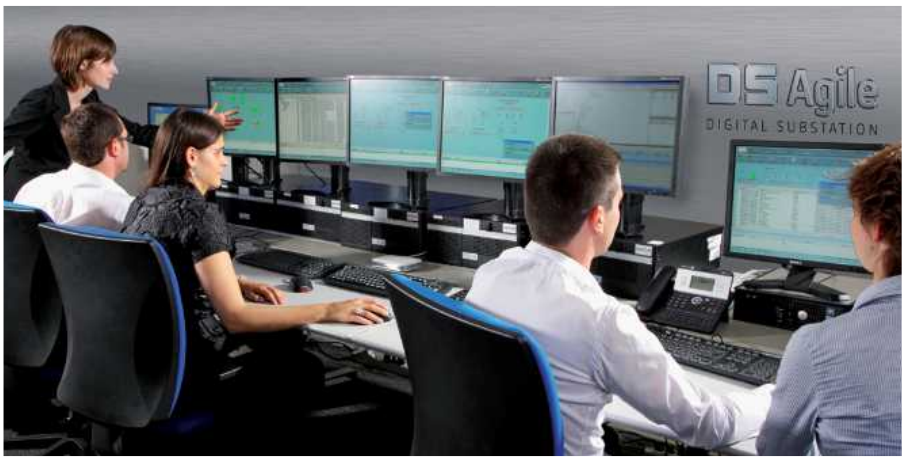
Through our worldwide organization, the Technical Institutes offer a broad palette of training courses on products and systems. Two training programmes are still delivered to increase skills and boost knowledge on legacy systems at the customer site:

- SPACE 2000: operation & maintenance
- PSCN 3020: configuration, operation & maintenance

For our cutting-edge technology, we offer training on:

- DS Agile: configuration, architecture, IEC 61850 communication protocol, Isagraph...
- DAPserver: hardware architecture, software installation and test, configuration and application, redundancy, HMI, cyber security and troubleshooting

Gain a deeper understanding of the relevance and impact of substation control and functions with remote control. Training can be delivered either in our factory or at customer premises with in-depth interchange with experienced trainees. It allows the operation and maintenance teams to become autonomous in their daily work and reinforces on-site expertise, as a result reducing maintenance costs and downtime.



Understand the benefits of systems evolution through a long-term vision that Grid Automation is looking forward to sharing with you.

For more information please contact
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