



Automated Deployment of Siemens Software

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- Background
- Objectives
- Approach/Initiatives
- Progress and Milestones
- Questions and Discussion

Background

- LHC Control Equipment
 - Such as gas controls, alarms, temperature sensors etc etc
 - Monitored by Programmable Logic Controllers (PLC)
 - Transit between different states, collect input from the control equipment/sensors and send to PVSS (data acquisition layer)
 - Large PLC user base at CERN
- Two main providers of PLC
 - Siemens
 - S300, S700
 - Schneider

Background II

- Step7 IDE provided by Siemens
 - To develop PLC code for the PLC's
 - Deployed to PLC's through Ethernet
- Has different programming interfaces
 - A programming language
 - Graphical language to describe states of PLC
 - And many other add-on tools to enhance its capabilities

- Siemens objective: To bring-in modern software engineering capabilities to Step7 product line
1. Step7 “Openness”
 - Source code versioning control
 - Capability available in PVSS but not in Step7
 - Initially source files had a binary format rather than plain text
 - Difficult for differentiating/comparing source files
 - Evolving to text based source files
 - Syntax highlighting
 - Keywords, blocks, functions
 - to improve PLC programmers productivity and reduce errors

2. Step7 “Automated Deployment”

- To automate the deploy Siemens software (Step7 initially) on a group of machines
- Custom solution or using off the shelf tools
- Enabling system administrators to roll out newer patches and upgrades
- Scalability: from small (10’s of machines) to large (100’s of machines)
- Easy to learn and deploy, fast refresh rate
- Ultimate AIM: to add value for Siemens customers

FIRST PRIORITY!!!

Approach

- Market survey of available tools
 - Identify their capabilities, cost and licensing issues
 - Proprietary, Open-Source (what kind of ??)
 - Build a feature and comparison matrix
 - Compare against Project Requirement Document
 - Shortlist the tools
 - Validate the solution with Siemens dev. team
 - Finally, provide a concrete proposal for Siemens
- **STATUS:** currently at the validation stage and market survey document already sent to Siemens

Approach II

- Gathering deployment of Step7 experience inside CERN: To learn about
 - Current practices at CERN
 - E.g. User self-managed or admins managing it? How?
 - Deployment environment and context
 - E.g. Where its deployed? GPN, Technical network?
 - Potential current issues and bottleneck
 - Are they using any tools to help them, if yes which ones? What is the frequency of the Step7 updates? Does the configuration change often? etc etc
- **STATUS:** A survey have been sent PLC users and would be completing in few days.

Approach III

- Meetings and brainstorming sessions with EN-ICE-PLC section
 - As they provide user support and services to CERN PLC community
 - Currently administers the availability of Step7 software
 - Learning and gathering their experiences
- **STATUS:** a list of deployment use cases focusing on CERN's context have been identified, developed and documented. Available to Siemens.

Milestones

- Project started in March and the work packages/plan was prepared
- Deliverables so far (with iterations) :
 - Market survey of the tools
 - PLC User survey feedback
 - CERN Use cases
- Next:
 - Software architecture document, validation of the selected tool at CERN, transfer of the code to Siemens
- Completion: End of Aug 2009

Conclusion

- Focusing on Step7 Deployment only
- Developing Work packages and project plan
- Identifying available tools
- Understanding present CERN's Step7 use cases and deployment practices
- Prepare a proposal for Siemens
- Validate/Test it
- Final Implementation

QUESTIONS!!!