

Improved Safety Through System Automation



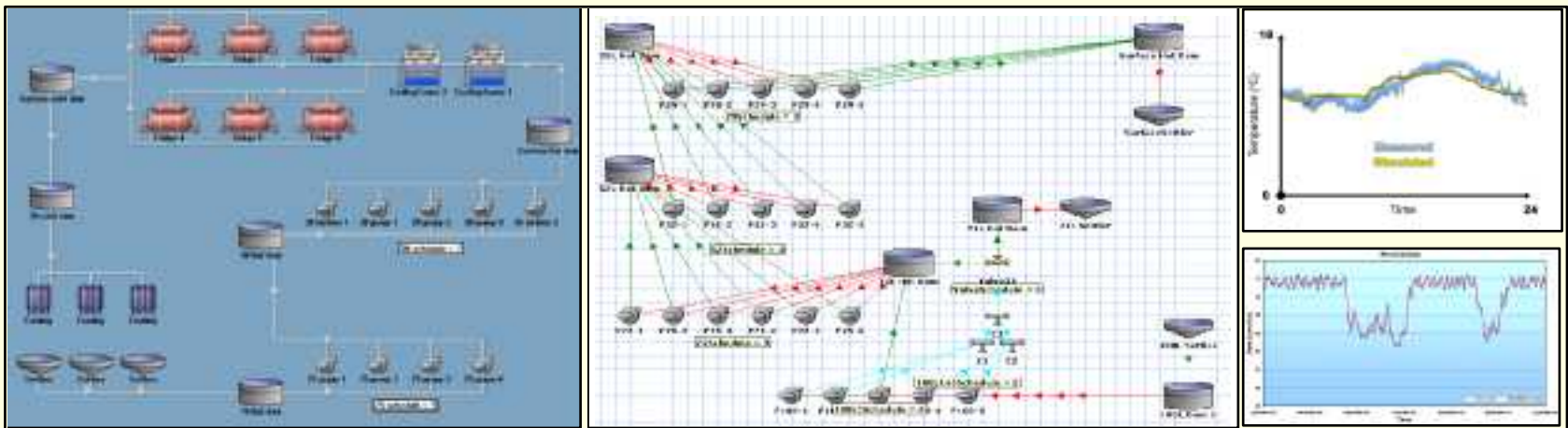
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CURRENT CHALLENGES

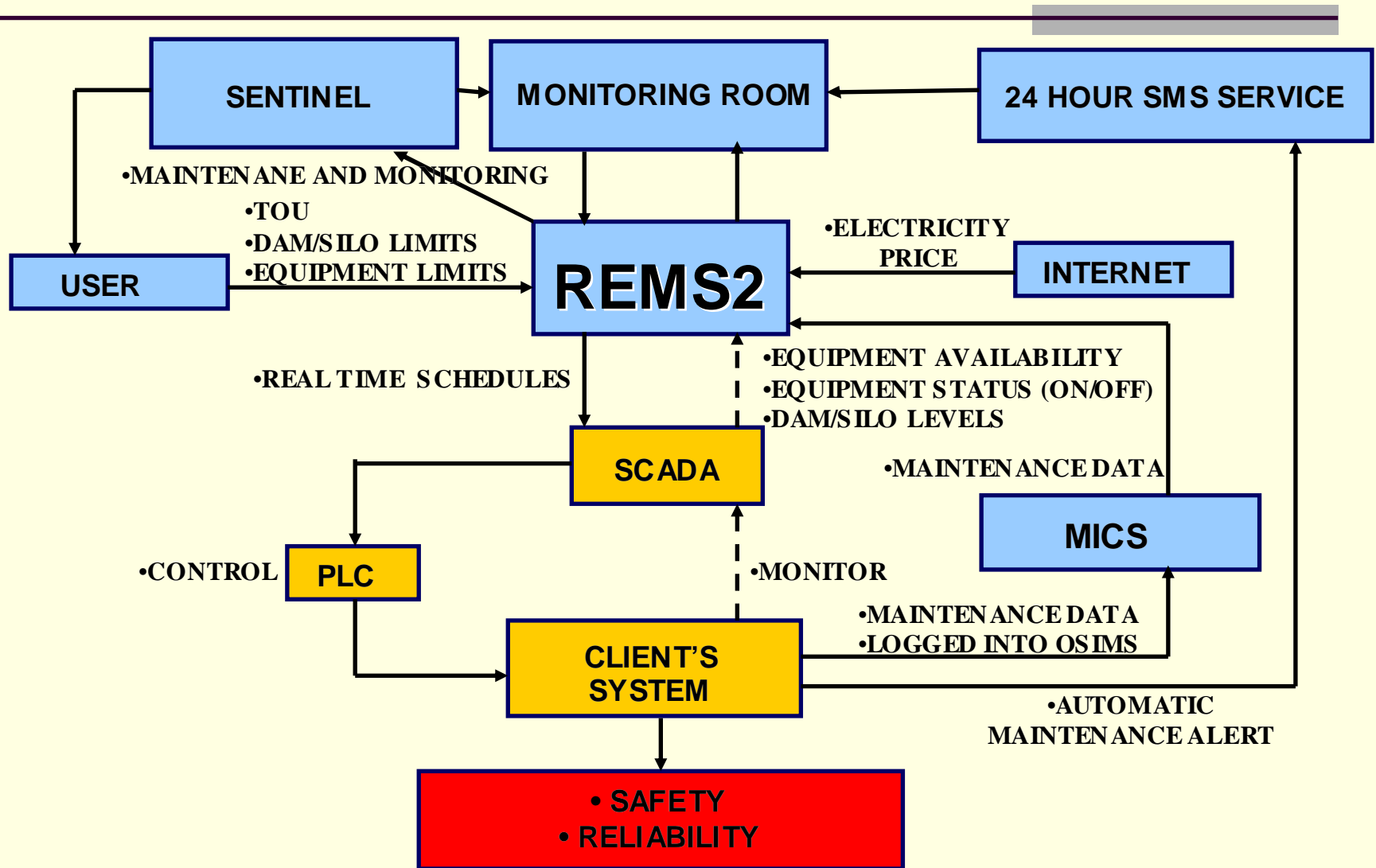
- Critical systems is often controlled by inappropriate personnel
- Closed systems approach to total equipment operation
- Manual operation of critical and dangerous equipment
- Manual monitoring of critical system and safety parameters
- Slow response by operators to system emergencies, e.g.:
 - Power failures
 - Breakdowns
 - Unavailability of appropriate staff
- Minimum control over operator decisions

GLOBAL SYSTEM INVESTIGATION

- System investigation
- System simulation
 - Ensuring all current operational, safety, health, maintenance and production constraints are met
- Verification of predictions



OPTIMISED AUTOMATIC CONTROL



AUTOMATION INFRASTRUCTURE





- Fully integrated automatic control systems:
 - PLC automation of equipment such as pumps, compressors, chiller machines, winders, etc.
 - Valve automation (water + air)
 - Real-time monitoring and control of flows (water + air), dam levels, temperatures, etc.
 - Fibre communication network
 - Central SCADA system
 - Real-time optimised control
 - System safety monitoring
 - System safety alarm system

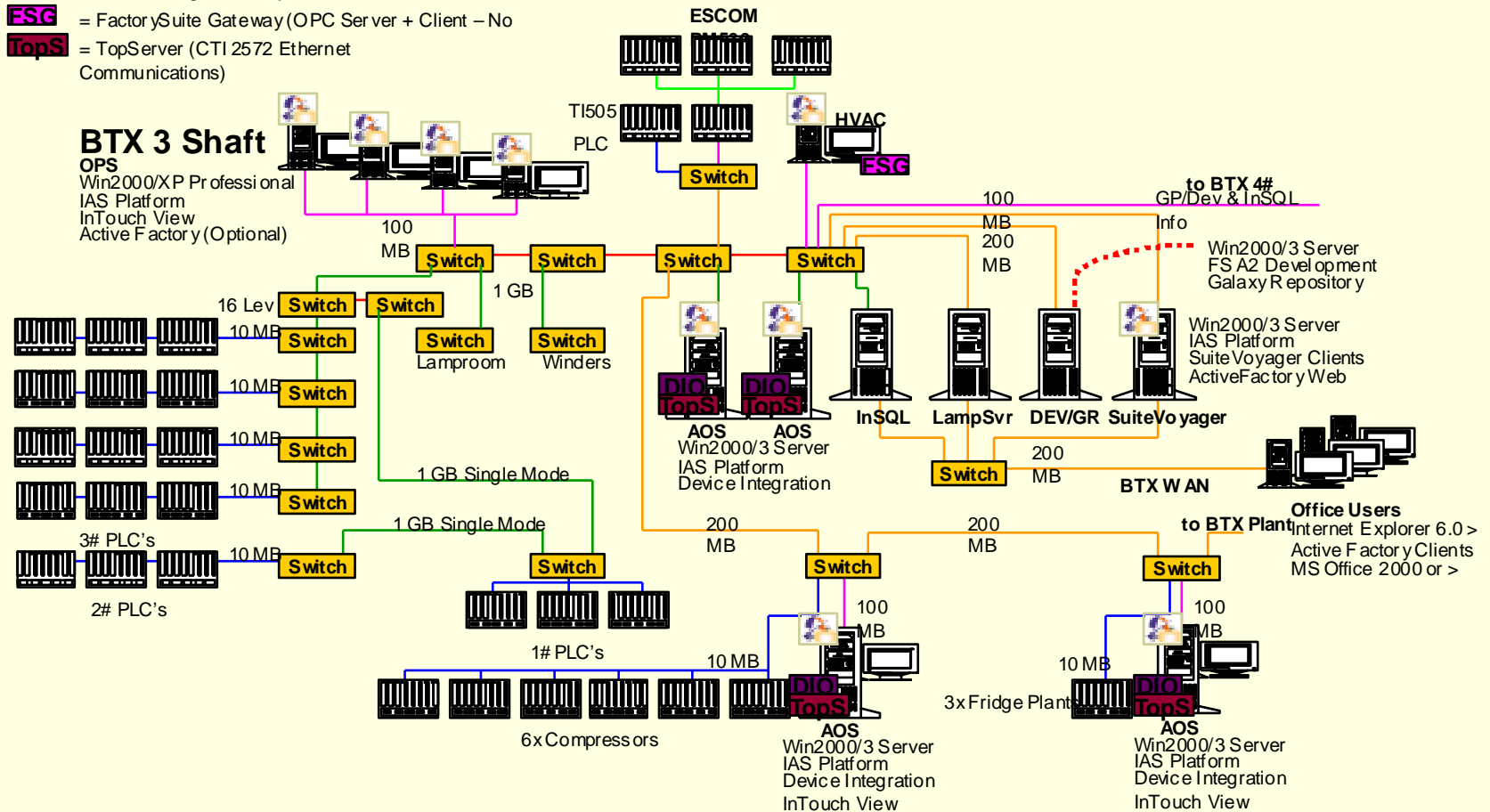
CAPITAL REQUIRED

- What is the value of improved safety?
- Costing usually in terms of payback, IRR, etc.
- Opportunity: Use Eskom-DSM funds



TYPICAL AUTOMATION EQUIPMENT

-  = IAS Platform
-  = Device Integration Objects
-  = FactorySuite Gateway (OPC Server + Client - No)
-  = TopServer (CTI 2572 Ethernet Communications)



EXAMPLES OF AUTOMATION EQUIPMENT



CONTROL SYSTEM ADVANTAGES

- Human error minimized (human intervention minimized)
- Fully automatic optimised control solution
- Safer open systems approach to system control
- Safer equipment operation
- No more manual operation of dangerous equipment
- Full system monitoring and control
- Real-time safety parameter monitoring and control
- Alarm systems
- Prompt automatic reaction to emergencies
- Emergency scenario simulation and planning
- Environmental monitoring and control
- Automatic safety diagnostic capabilities

CONCLUSION

Fully integrated mine systems automation can realise:

- Improved personnel safety
- Improved equipment safety
- Cost saving as a bonus

Any questions?

