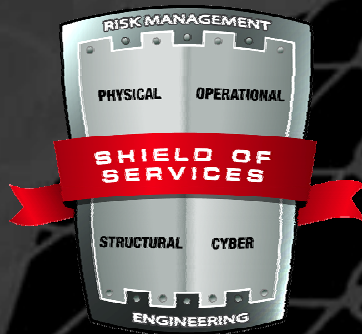




NERC Critical Infrastructure Protection “Critical Cyber Assets”

DESIGN • BUILD • SECURE



Four Security Disciplines

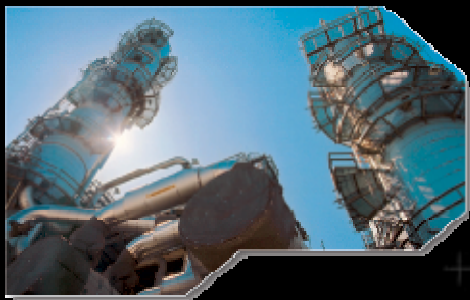
- **Cyber**
 - NERC Readiness
 - Secured SCADA/EMS/DCS Design
- **Physical**
 - Asset Protection Standards
 - Construction Management
- **Structural**
 - Blast Analysis
 - Structural Hardening
- **Operational**
 - Grid Reliability Analysis
 - Emergency Operations Procedures



Critical Infrastructure Protection Clients

- Ameren
- Tri-State G&T
- Department of Defense
- Orlando Utilities Commission
- JEA
- MidAmerican Energy
- Kansas City Power & Light
- Hoosier Energy
- City Utilities
- Northeast Utilities
- PEPCO
- Southern Maryland Electric





Where are your Critical Cyber Assets?

The new face of Critical Cyber Assets

- RTUs, Relays & Communication Processors

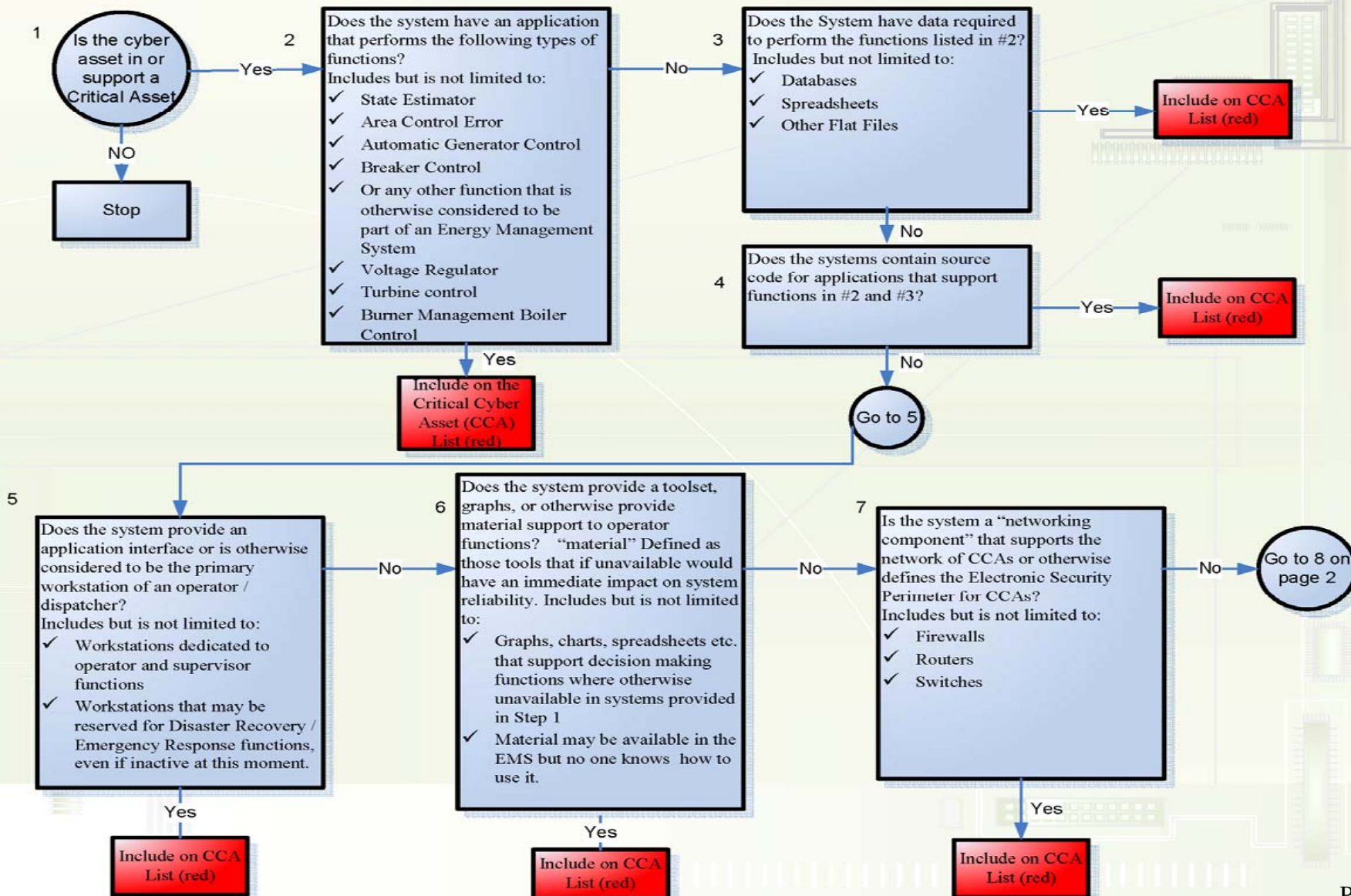


- Controllers, PLCs, and HMIs
 - Emerson's Migration path from WDPF includes upgrading controllers with embedded VxWorks.
 - Controllers are IP enabled

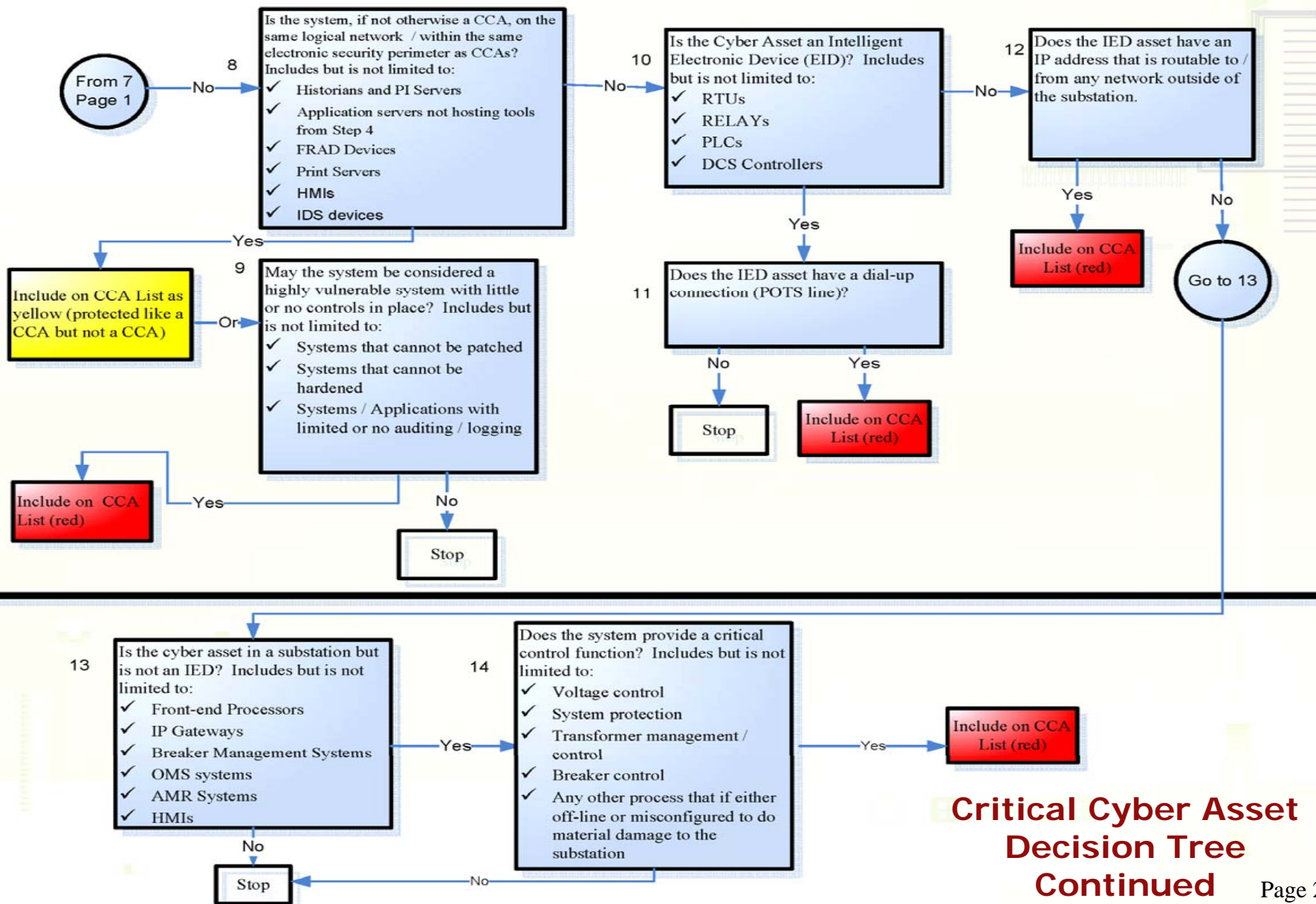


Critical Cyber Assets

Critical Cyber Asset Decision Flow



Critical Cyber Assets



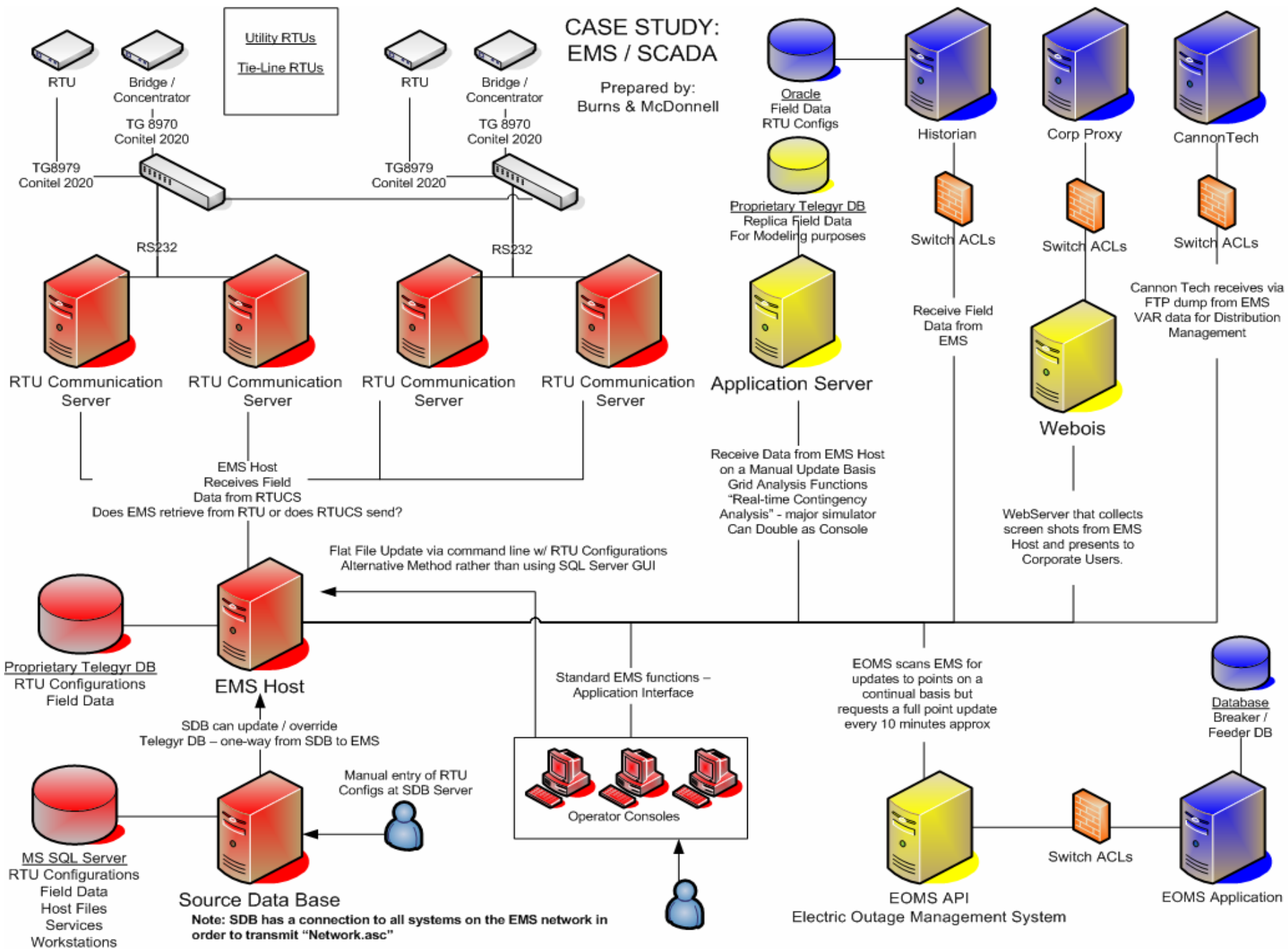


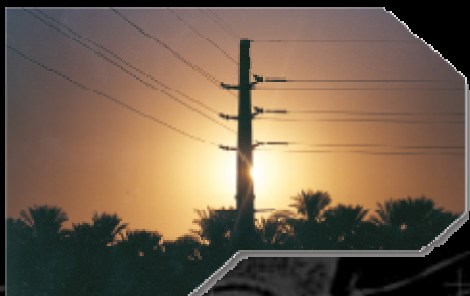
Control Centers



Transmission Operations / SCADA



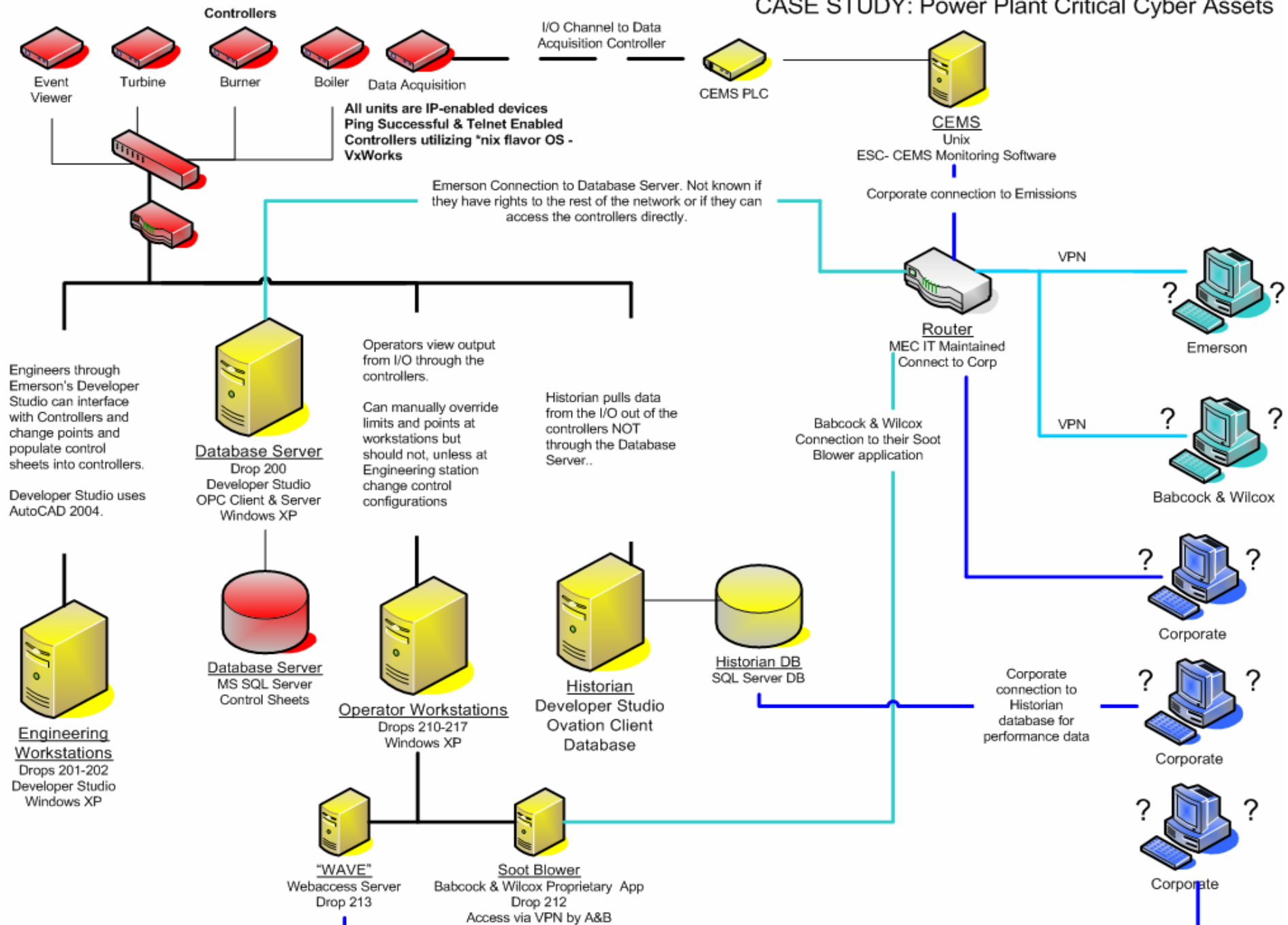




Dual Homed Systems, IP-enabled Controllers, and Vendors ...OH MY!

(Generation Critical Cyber Assets)

CASE STUDY: Power Plant Critical Cyber Assets

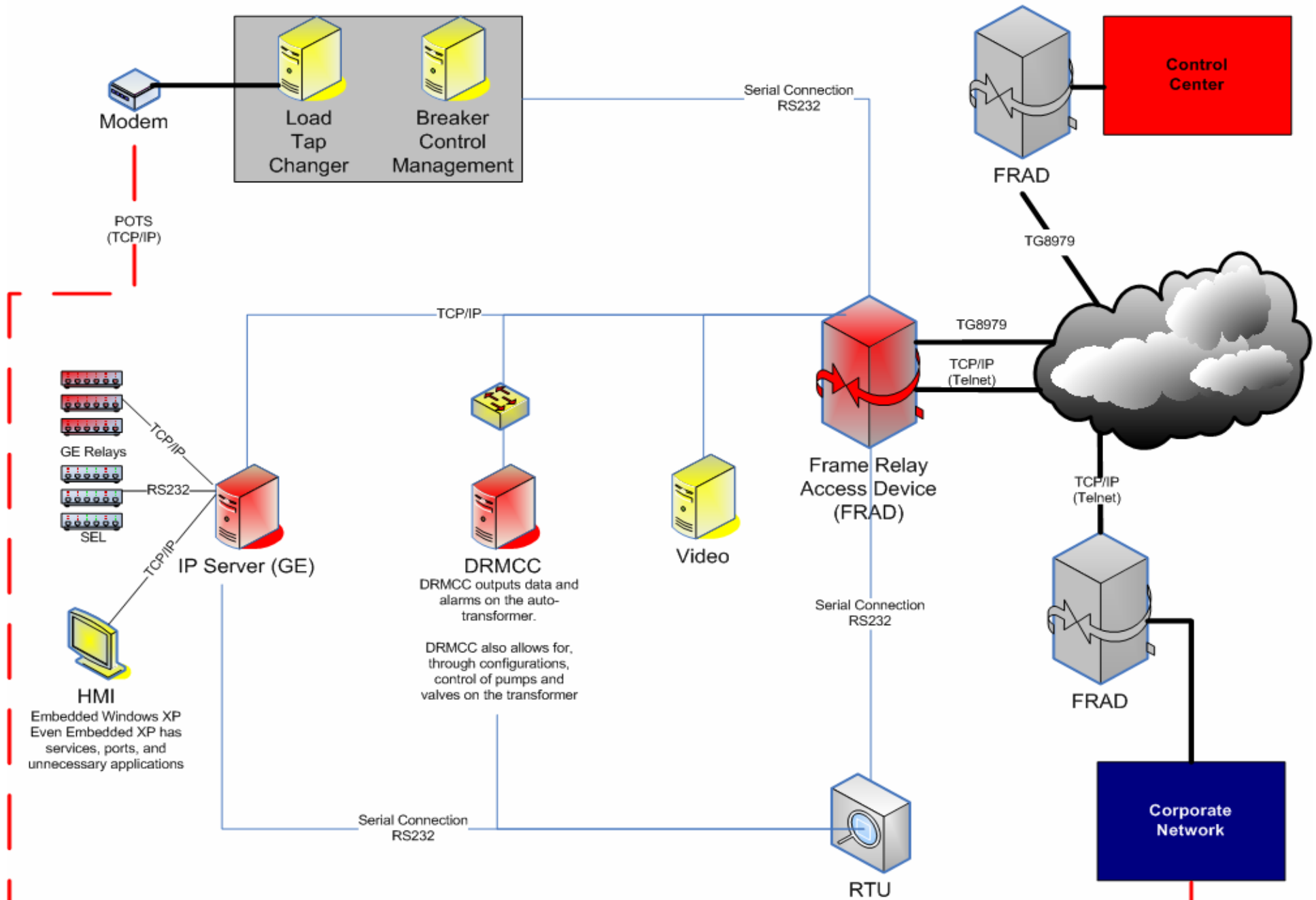




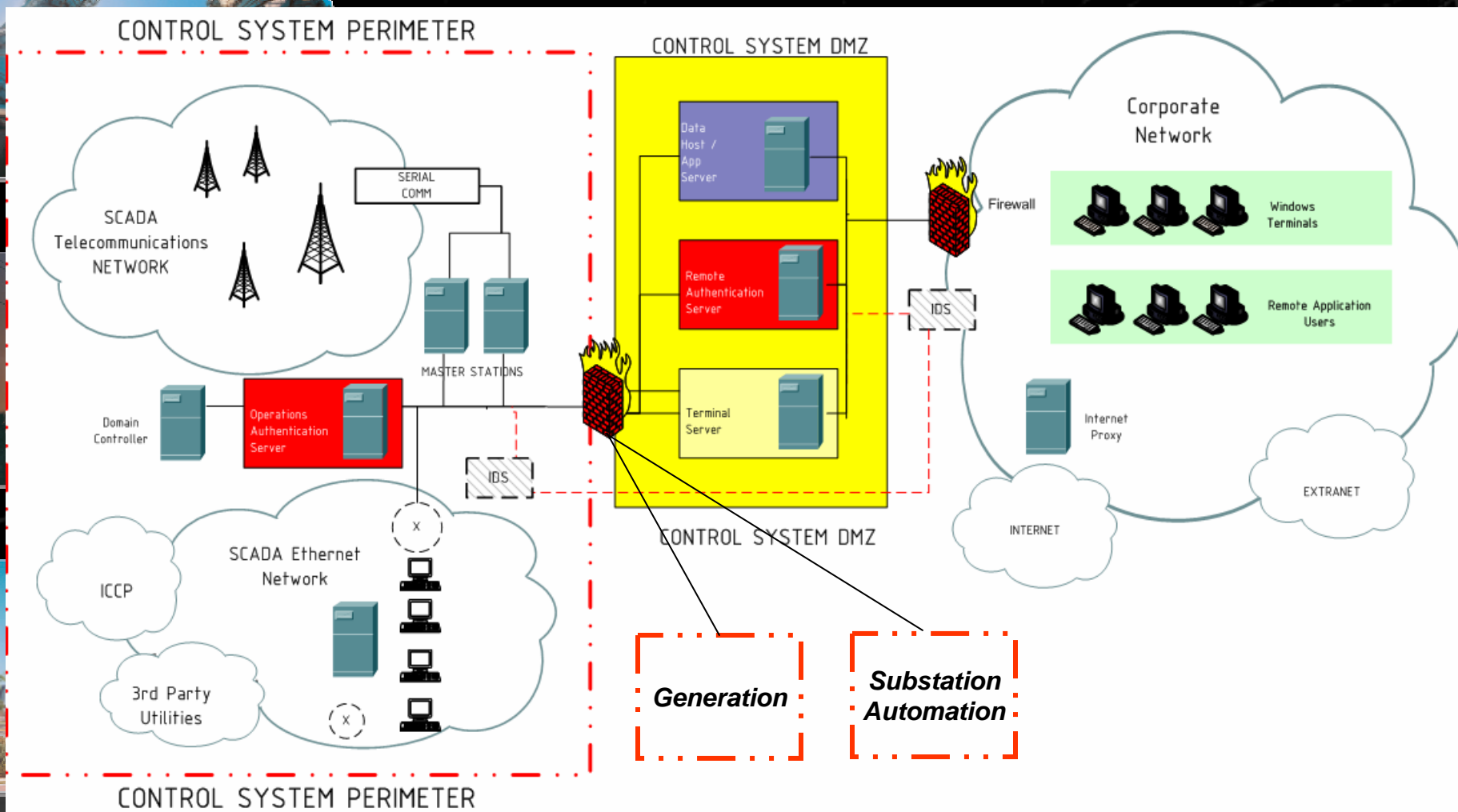
And now for something completely different.....

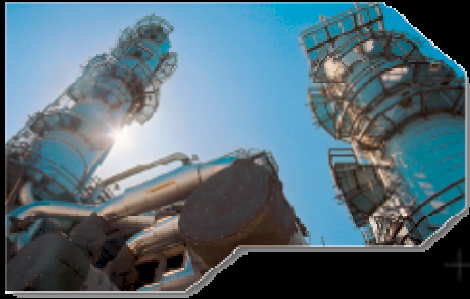
(Substation Critical Cyber Assets)

CASE STUDY: Substation Automation



Secured Connectivity





Thank You

Tobias Whitney, CISM CISSP

Burns & McDonnell

twhitney@burnsmcd.com