Device Interrogation at TVA Discussion

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Open Discussion Topics

SOFTWARE

- openMIC
- openPDC
- openXDA
- eDNA

NETWORKS

- High security
- Low security
- Field

SECURITY

- On-prem vs cloud auth
- Encryption
- CIP

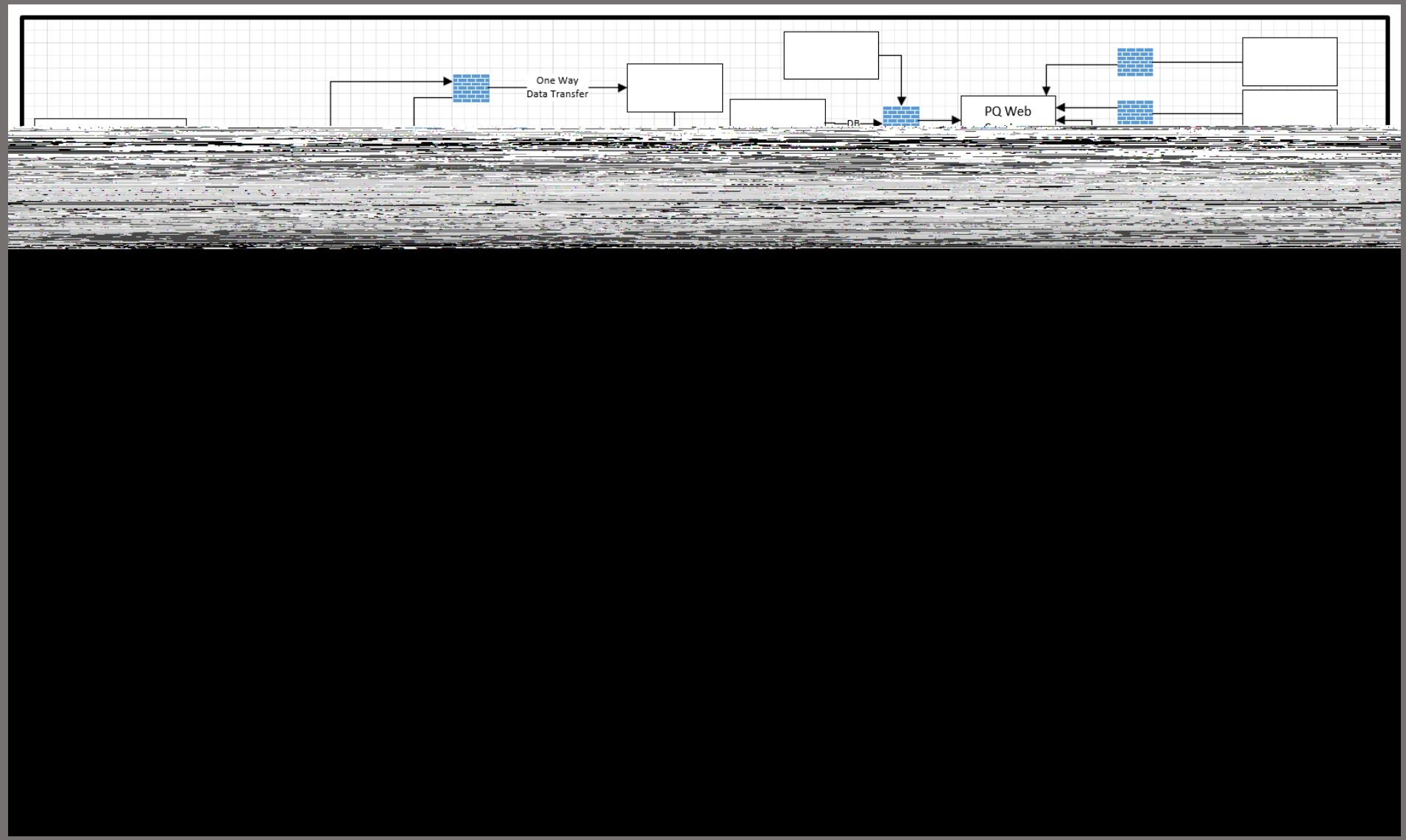
USER ACCESS

- Remote vs local
- Admin accounts vs user vs power user

OPERATIONS

- Bandwidth
- Redundancy and Failover
- Patching
- Resource Utilization

Data Flow Complexity



Due to the number of firewalls, data entry points, CIP considerations, and internal policies the flow of data is extremely complicated.

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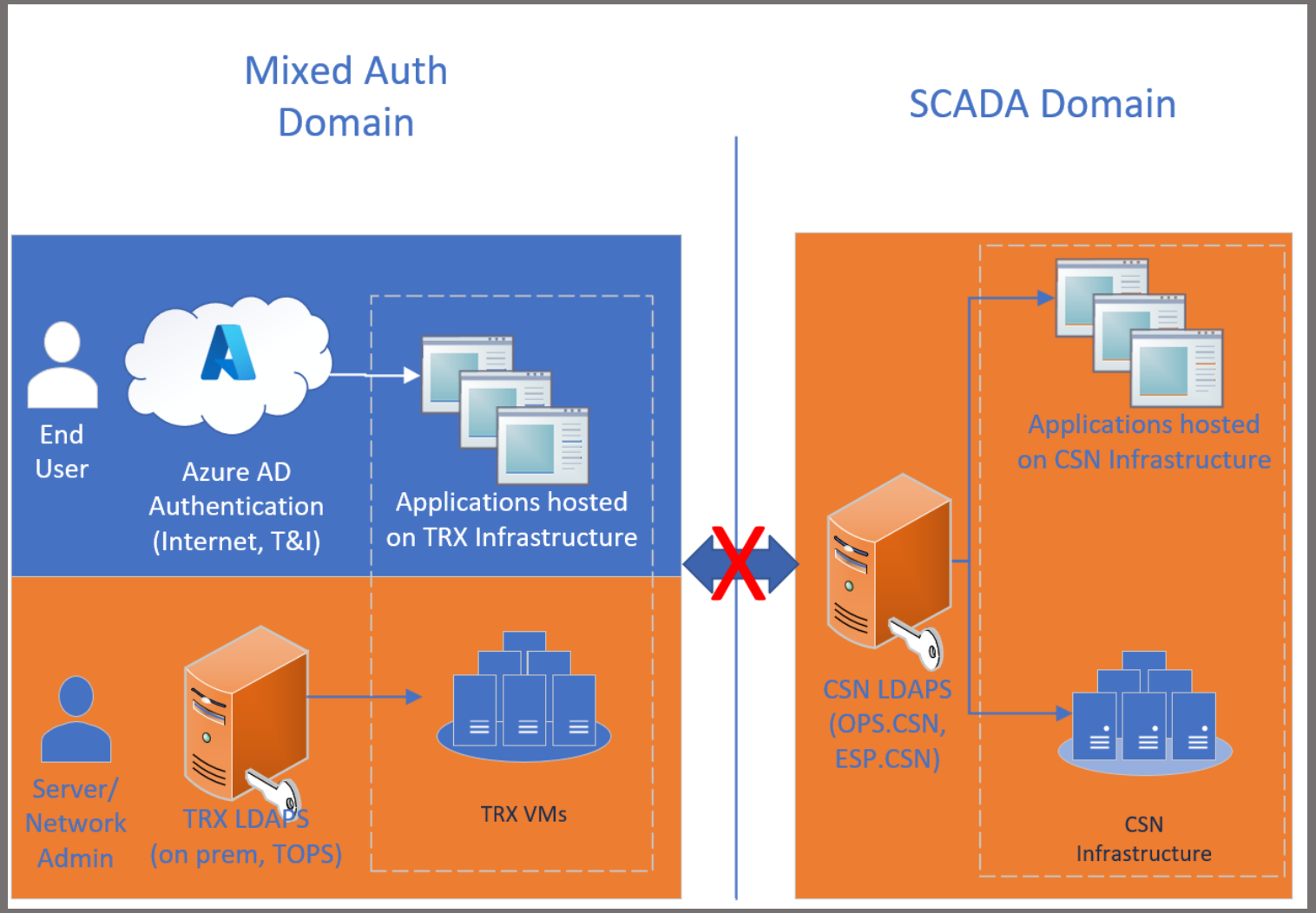
Authentication and Domains



Internal policy mandates that all systems must work (and be effectively managed) even when disconnected from the internet, and the IT owned corporate network. This requires on-prem redundant use case architecture that also necessarily differs in technology selection.

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Operations

- Control Centers with redundant clustered hardware
- Utilizes HCI and vSAN, moving away from blade chassis and SAN
- Bandwidth has only been a problem for remote sites over cell, microwave, or other older technologies
- Microsoft Server Fail-over clustering
- Tiered storage arrays utilizing data de-dup
- 3 levels of software assurance – dev, acc, prod
- Patching done monthly using failover to switch nodes when patches are to be applied
- No need was seen for especially high performance hardware
- Encryption at the network level (DMVPN, TLS, etc)

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Hard Spots and Talking Points

- Large amount of storage possibly required, determine retention policy upfront
- Connections to control devices (relays) can force onerous controls on all other non-control assets/connections
- Disconnection requirements can complicate authentication
- Movement of data between domains with different levels of trust should be carefully examined for bi-directional feeds
- Device management software is often best separated out from polling software for more robust configuration management control

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