TCIPG

Synchrophasor Data Quality

NISTIR 7628 Cyber Security Visualization

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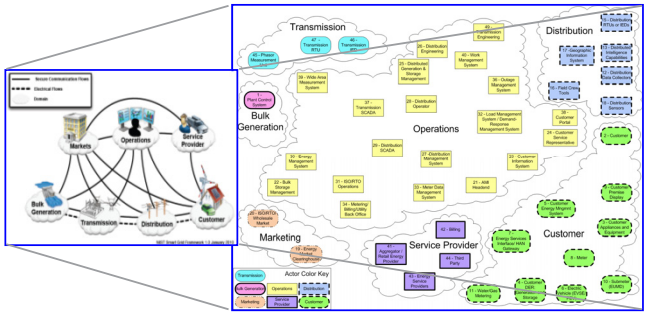
GOALS

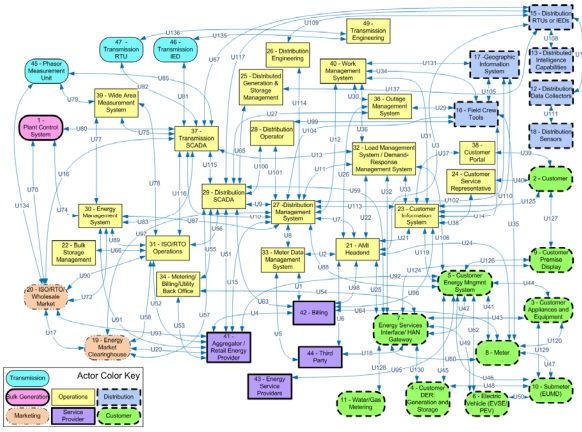
- Develop a visualization application to aid understanding of the complex security guidelines and relationships conceptualized in the **National Institute of Standards and Technology Interagency Report** (NISTIR) 7628, *Guidelines for Smart Grid Cyber Security*.
- The application is a visually based information management tool that enables aggregation and organization of cyber security guidance in flexible, user-specified ways to enable rapid synthesis of strategic ideas.
- Examine approaches for mapping guidelines to realistic network maps.
- Provide a resource to easily, effectively convey cyber security concepts and guidelines to widely varied audiences.

FUNDAMENTAL QUESTIONS/CHALLENGES

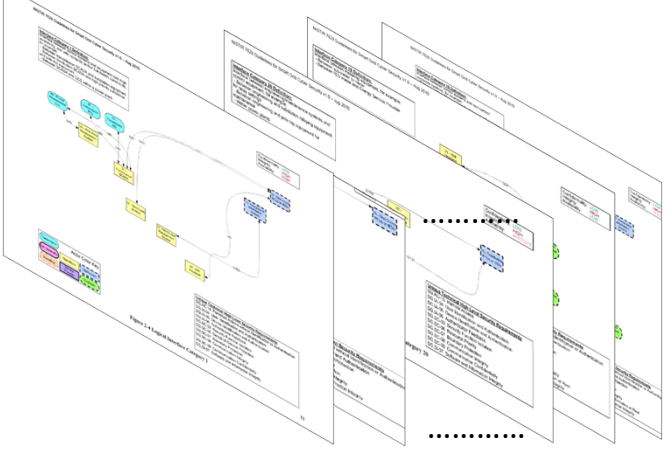
- NISTIR 7628 – 3-volume, 600+ page technical document. Very challenging to digest and understand.
- Organizes the power system into 7 domains having 49 actors,…



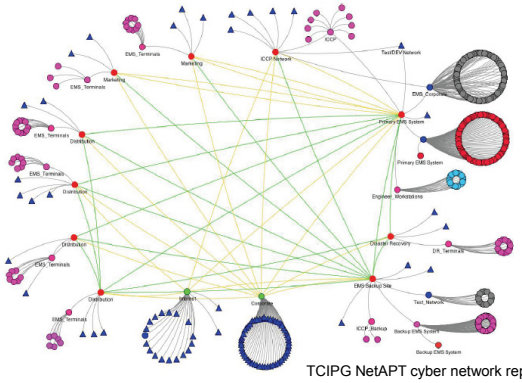
…. 127 logical interfaces,…



…. 22 logical interface categories, and 6 logical architectures ….



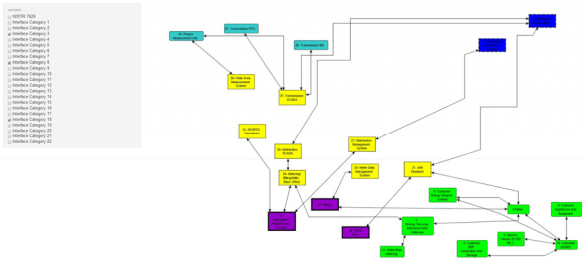
….and bears little resemblance to a typical utility system cyber network map!!



TCIPG NetAPT cyber network representation

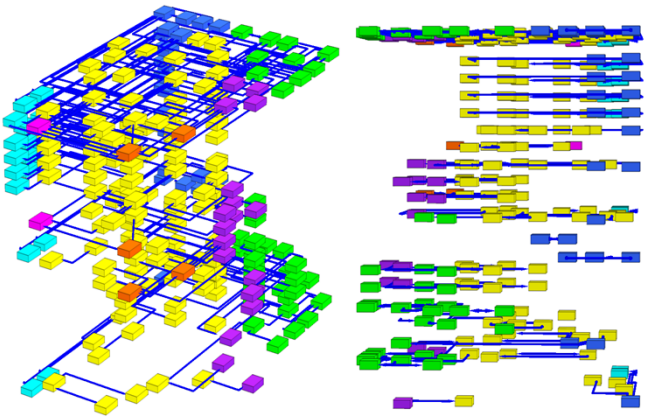
RESEARCH RESULTS

- Web-based selectable logical interface category representation.



2D NISTIR Visualization with Interfaces 3, 8, and 18 Displayed

- MATLAB 3D logical interface category representation.



3D NISTIR 7628 Visualization

- Seeking effective methods to label actors, logical interfaces, and interfaces compatible with interactive perspective changes.
- Seeking ways to easily zoom in and pan out.
- Seeking ways to increase information content available to user; user selects and controls the information displayed.

BROADER IMPACT

- Visualization application has the potential to provide far-reaching benefits in conveying complex information effectively to wide audiences.

FUTURE EFFORTS

- Leverage an advanced application platform to increase the NISTIR 7628 technical content available to the user.
- Leverage computer graphics expertise outside the existing team.
- Investigate effective ways to visually map NISTIR 7628 guidelines to realistic cyber networks.

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