

# Root Cause Investigation ICCP Outage Event



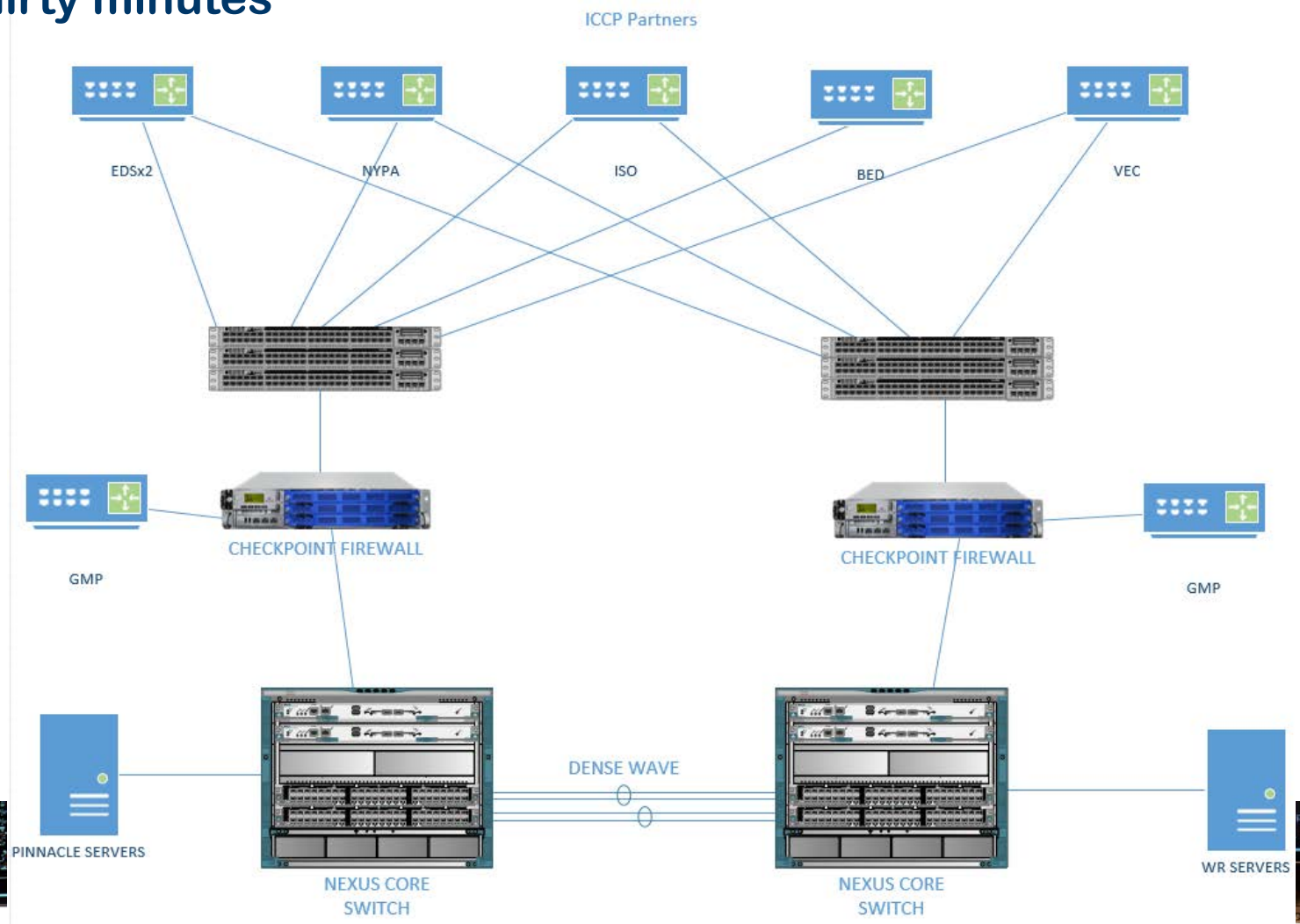
vermont electric power company



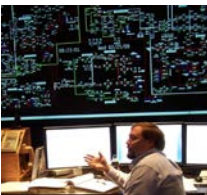
December 3, 2015

# NERC Reportable Event

## Inter-Control Center Communications Protocol (ICCP) outage greater than thirty minutes



September 29, 2015



# Identified Causal Factors

- **Work Direction**
  - No formal work plan
  - Inadequate pre-job preparations
  - Multiple priorities and compliance deadlines
- **Procedures / Plans**
  - Current formal processes and procedures focus on CIP
  - Governance oversight for all IT work not formally documented
- **Training / Instructions**
  - No formal training for new equipment
  - Reliance on contractor as subject matter expert
- **Communications**
  - Advance notifications and vetting did not occur
- **Human Engineering**
  - No off-line replicated test system
  - Work instructions specific to this update were not developed
  - Current work environment not ideal, including lack of full visibility of the system during upgrade



# IT Department Corrective Actions

- Develop and implement work schedules, plans, and priorities
- Develop formal governance program for all work performed in IT Department
- Develop specific procedures/plans for work performed on IT devices that can significantly impact operation of system
- Assess and develop competency and knowledge requirements for staff and contractors regarding VELCO IT systems
- Develop strategies to work on complex systems with no replicated off-line test system
- Develop work environment norms and tools to facilitate critical work activities

# RCI Team Recommendations to IT Department

- Continue work with vendor to determine why patch caused impact to system
- Work with NPCC to develop a lessons learned document
- Perform risk-based gap analysis to assess business strategies to support activities going forward
  - Possible use of outside contractors
  - Roles and responsibilities
  - Succession planning

*Continuous improvement  
is better than  
delayed perfection.*  
Mark Twain

