Distribution Operations Training Simulator (DOTS)
Simulator vs. Playback Tool

- Simulator lets you create an event, then calculates and provides correct system response – fault currents, device operation, etc.

- Playback tool re-enacts events recorded in the past
DOTS Applications

• Train and Certify Operators & Dispatchers
  – Train in routine and complex operations with accurate system response
  – Event Scripter allows development of complex training scenarios
  – Simulated Power System Model generates network responses
  – Power flow data points fed to simulated SCADA

• Test Models, Model Changes
• Develop and Test Optimization – FLSIR, VVC, etc.
• Evaluate System Performance – responsiveness, capacity
• Test Software Upgrades
Simulator View vs. Real-Time View
Training Simulation Components

- User interface presentation and navigation
- Switching operations (manual and supervisory)
- Tagging
- Topology processing, including feeder coloring and tracing
- Annotations
- SCADA operations and alarms
- Network analysis
- Network optimization
- Outage Management
- Study mode and real-time operations
- “Robotools” – Crew, AMI, IVR, Operator, SWO simulation
Simulation Activities

- Perform Switching Operations
- Apply Faults
- Scale load, by station/by feeder/by load
- Change Network Configuration (temporary Modifications)
- Configure Crew Behavior (Availability and Responses)
Place Fault – DMS Response

- Simulator traces upstream protective device, opens it
- FLISR operates (if enabled)
Place Fault – OMS Response

- Outage notifications sent to DMS/OMS via:
  - SCADA
  - Customer call-in/IVR
  - AMI power off messages
Script events can consist of:

- Faults on lines
- Faults on transformers
- Can consist of high number of faults, high activity scenarios
- Customer calls
- Modify call rate (OMS) parameters
- Switch changes
- Pause (pauses execution of the script, allowing the instructor to resume execution at an appropriate point)
- SCADA measurement simulation (value and quality changes)
### Scripter Scenarios Matrix

#### Enter Probability (0 - 10000000) for each reason and equipment/fault type.
Select stations and time range on Calculation tab.

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<th>Reason Code</th>
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<th>OH Line one phase</th>
<th>OH Line Temporary</th>
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#### Transformer Multiplication Factor
- 500

#### Line per unit Multiplication Factor
- 300
Questions/Discussions

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