CURRENT® Smart Transformer Station
Communications

The most critical events on a grid require real-time recognition and response. Consequently, an essential element of a Smart Grid is that its communications capability be characterized by low latency to link the real-time events being measured (such as load and congestion, system stability and equipment health, outages, or demand response events) with the appropriate grid responses necessary to improve efficiency and reliability. Moreover, the complexity of managing distributed endpoints significantly increases when planning for the potential of widespread residential and commercial solar panels and wind sources, plug-in hybrid and electric vehicles and other distributed energy resources.

The *CURRENT* integrated Smart Transformer Station (STS) Communications solution provides a two-way, real-time open network for connectivity between transformer stations and the data center (Distribution Substation Inter-connect), and to utility devices (sensors, switches, collectors, etc.) within the transformer station (Distribution Substation Intra-connect). In doing so, the *CURRENT* STS solution allows utilities to substantially reduce the telecommunications costs of deploying a Smart Grid while simultaneously solving the problem of asset connectivity, Internet Protocol (IP) addressing, detection, and health monitoring of devices within the transformer station.

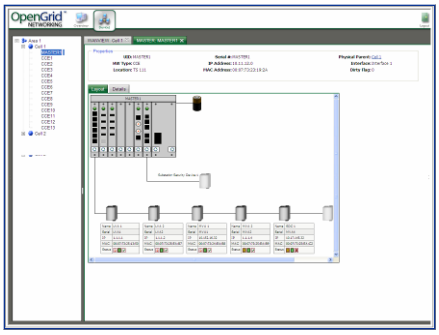
The *CURRENT* STS Communications solution includes the following components:

- **CURRENT *Communications and Connectivity Engine* (CCE)**

  Provides a modular and integrated Smart Grid, AMI, and communications solution. The CCE provides for both inter- and intra-substation communications that enables the utility to easily build a Smart Grid communications infrastructure linking distributed devices together and with the data center.

CCE in 6-slot and 5-slot chassis versions

- **CURRENT *OpenGrid™* Networking (OGN)** is a highly scalable element and network management software platform that provides utility telecom and communications personnel with unprecedented provisioning, management, troubleshooting, software revision control, and asset connectivity remotely from their back office.



OpenGrid Networking Inter/Intraconnect view

Key Features and Benefits

- **WAN Communication Agnostic.**
  Provides the ultimate flexibility to choose the appropriate solution based on performance, cost, and coverage for each situation.
- **Robust Network Management.**
  Greatly reduces the total cost of ownership with savings in all areas, including turn-key provisioning and increased system availability through real time monitoring and troubleshooting tools.
- **Central Communications Hub.**
  Acts as a central hub for metering infrastructure control and data collection, sensing & analytics and asset control within distribution transformers.
- **Multiple Interfaces.**
  Not only provides WAN communication interfaces, but also to existing utility equipment such as RTUs, switches, sensors, etc.
- **Modular Concept.**
  Supports multiple function and interface modules or appliances to add new capabilities for future-proven deployment concepts.