

# C-RAS

Centralized Remedial Action Systems



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## OVERVIEW

Given the challenges of building new transmission lines, it is critical that utilities maximize the utilization of their existing assets without jeopardizing reliability. Implementing reliable and fast mitigation schemes can enable significant reduction in reserve margins while maintaining or even increasing reliability in some cases.

Traditional distributed remedial action schemes (RAS) that rely on complex device programming that interacts in real-time across multiple substations can be difficult to develop, test, and maintain. This increases the cost and slows more widespread usage of wide area RAS. Centralized RAS can lower the cost by providing a higher-level development environment with better simulation, testing, and management capabilities. This enables more rapid and widespread implementation of RAS that can save utilities millions of dollars compared to other methods of RAS or adding capacity in existing transmission corridors.

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## BENEFITS

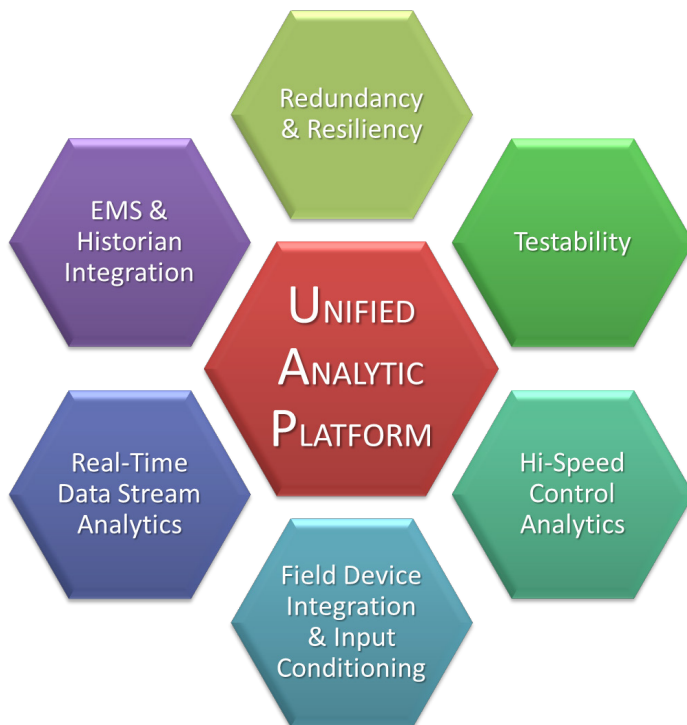
- Lower the reserve margin for critical lines through more effective mitigation strategies
- Implement multiple complex multi-line contingency based RASS to prevent cascade failures
- Lower deployment costs by eliminating complex logic from distributed remote substations via centralized RAS processing using modern programming languages
- Lower testing costs using simulation tools that support complex event emulation coupled with powerful analysis and debugging capabilities
- Enables continuous improvement of RAS algorithms using fault playback for testing and validating changes by comparing new algorithm performance to past events
- Easily integrated with existing system operations through standardized ICCP-TASE.2 and web service interfaces
- Leverages IEC 61850 GOOSE messaging and modern networking for maximum performance enabling wide area protection of critical assets

## FEATURES

- Integration with the OSIsoft PI System enables system events and states to be historized with application responses for analysis of system faults and application performance
- High-level analytic application development environment based on the Microsoft.NET platform provides a more productive environment for development, testing, debugging and maintaining applications versus distributed remote device programs
- High-performance interfaces to the network and PI System enable analytics to run in real time for time-critical applications like C-RAS
- Scenario playback system allows past system event information to be played back into analytic applications for RAS testing and improvement based on actual event data
- SISCO GOOSE Blaster enables development of complex fault simulations for testing
- Flexible device configuration based on standardized Substation Configuration Language (SCL) to support multiple types and brands of substations devices

## APPLICATIONS

- Wide Area C-RAS for better control and mitigation of contingencies in existing transmission corridors.
- High-speed analysis for detecting abnormalities in data streams.
- Real-time analysis and calculations using phasor and other data streams



## UNIFIED ANALYTIC PLATFORM

SISCO's Unified Analytic Platform provides a high-performance environment for the development, debug, and enhancement of analytic applications to support centralized remedial action and other wide area control algorithms. SISCO's Unified Analytic Platform provides a unique structured environment that integrates development, testing, simulation, results analysis, reporting, and algorithm improvement processes into a unified platform for analytic applications utilizing popular real-time data historians. The Unified Analytic Platform provides an environment for high-performance analytic applications that are:

- **High-Performance**
- **Redundant**
- **Repeatable**
- **Testable**
- **Maintainable**