

Overview

Spirae Wave™ gives Utilities, Energy Service Providers, DG Aggregators, Project Developers and EPCs a comprehensive platform for designing, deploying, operating, and optimizing portfolios of renewable and distributed energy resources (DER). It is the market-leading platform for building and expanding businesses that leverage DER for applications such as energy services, grid operations, fuel arbitrage, virtual power plants and microgrids.

Spirae Wave™ is a comprehensive software and hardware platform with value-added applications that enable both Distributed Energy Resource Management Systems (DERMS) and Microgrids. Wave™ can be quickly configured for a specific system, tested in simulation, and field deployed without writing any new code. This approach, based on advanced system representations and standard libraries, results in system design and deployment that is at least an order of magnitude more efficient than conventional approaches based on custom programming PLCs (Programmable Logic Controllers) and SCADA (Supervisory Control and Data Acquisition) systems. Additionally, with its standard Application Programming Interface (API), Wave™ can be quickly extended to implement proprietary business logic to meet unique customer needs.

Spirae is the only product on the market today that is grid aware, DER-agnostic, and comes standard with advanced DERMS and Microgrid power management features.



What Makes Wave™ Different

Dynamic Asset Management

Wave™ detects availability, health and capabilities of configured assets and responds to changes automatically. Wave™ algorithms operate on dynamic sets of DER to deliver user requested outcomes regardless of the status of individual DER. Operators can control the system at the asset level, group level or system level.

Grid Awareness

Wave™ maintains the connectivity information between assets in the form of grid topology and automatically responds to topology changes such as breaker or switch actuations that modify the connectivity between system elements. Grid Awareness enables Wave™ algorithms to respond appropriately to topology changes.

Power Flow Management

Spirae's innovative power flow algorithms are based on over a decade of research and field deployments in North America and Europe. Field-tested algorithms ensure that DER portfolios operate within voltage, frequency and capacity ranges specified by the user. An ever-expanding library of power flow algorithms give Wave™ the ability to deliver advanced capabilities such as demand control, ramp rate control, import/export control, renewables balancing and optimal dispatch.

Wave™ Apps

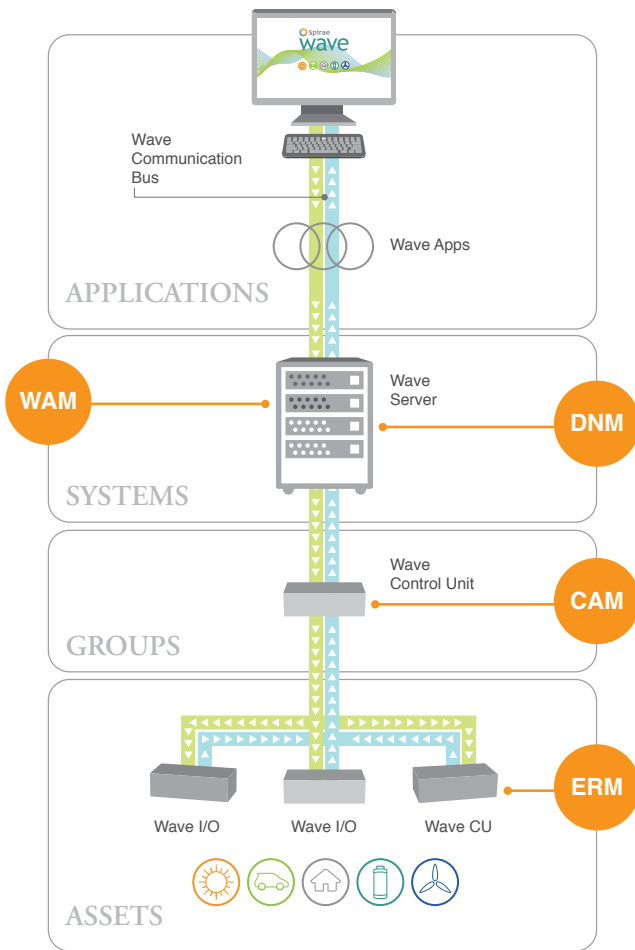
Wave™ possesses an Application Programming Interface that allows modular applications called Wave™ Apps, to be selectively deployed to the base Wave™ platform. Wave™ Apps enable Wave™ capabilities to be extended incrementally and as needed.

Technical Features

- System Visualization with intuitive drilldown
- Add/remove DER to/from system at any time
- Apps have access to all commissioned and integrated DER
- Integrates with existing SCADA/DMS systems
- Data exchange/point-of-control-transfer with other applications
- Functional capabilities exposed to users at system nodes
- "Study mode" to evaluate the impact of operator actions
- Coordinated Field Engineering and System Commissioning

Key Benefits

- Efficient System Design, Deployment and Operations
- Scalable from single facilities to Utility service territories
- Extensible with Wave™ Apps
- Efficient integration with SCADA/DMS/DR Applications
- Analytics to optimize operations
- Significant labor and cost savings
- Easy to Use with simple and intuitive User Interfaces



Architecture

Spirae Wave™ is based on a unique layered architecture comprised of both software and hardware elements. Spirae Wave™ seamlessly manages the complexity of operating a distributed energy system, much as an operating system manages the complexity of a computer's subsystems and its peripheral devices. Spirae Wave™ gives users a simple and intuitive way to manage their power systems using specialized Wave™ Apps that meet their specific needs.

Applications

Wave™ Apps are managed by the Wave™ Application Manager (WAM). Wave™ Apps are extensions to Wave™ that add business logic to meet user-specific objectives.

System

System level objectives are carried out by the Distribution Network Manager (DNM). The DNM stores the full representation of the DER portfolio including assets, connectivity, and capabilities of the overall system.

Groups

Groups of Assets are hosted and managed by Control Area Managers (CAM). Groups give Spirae Wave™ the ability to aggregate DER into dynamic portfolios assignable to different system capabilities.

Assets

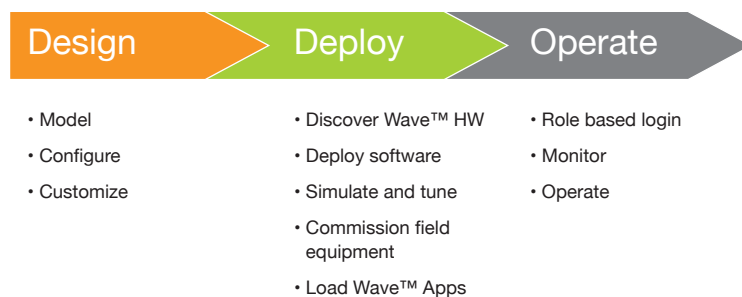
An Asset is any distributed energy resource that Spirae Wave™ needs to know about in order to manage the system under its control. Assets are hosted by Energy Resource Managers (ERM). Spirae Wave™ uses a standardized catalog of assets to easily interface with and manage assets.

Communications

Spirae Wave™'s software processes communicate via a dedicated bus called the Wave™ Communications Bus (WCB) that manages transport of time sensitive data.

Get Started

Wave™ implementation starts with the deployment of the Wave™ Description File – a precise description of the target system including all relevant assets, grid elements, constraints, and capabilities. This system description then drives the automatic code generation, software deployment, and field commissioning of the distributed control system. It also enables software simulation and scenario testing prior to field deployment.



System Requirements

Client: Windows 7

Server: Windows Server 2008, or
Windows Server 2012.

Delivery Model

Spirae Wave™ is available as an Enterprise (on-site) installation or Cloud based platform.



North America:
Spirae LLC
243 N. College Ave
Fort Collins, CO 80524-2404
United States

Sales:
sales@spirae.com
+1 970 484 8259