

# Control4® ADVANTAGE Software: Powering the Control4 EMS 100

The brains behind the Control4® EMS 100 is Control4® ADVANTAGE, enterprise-class software that enables the exchange of data between utility back-end systems and home area networks. ADVANTAGE works with smart grid communications, metering solutions, and utility enterprise systems to deliver valuable insight to both utilities and their customers.

## Optimize Load Management Data

ADVANTAGE collects granular customer usage data by device; quantifies usage and cost savings for reporting, feedback and incentives; and integrates the data into load management, demand response or other utility back-end systems.

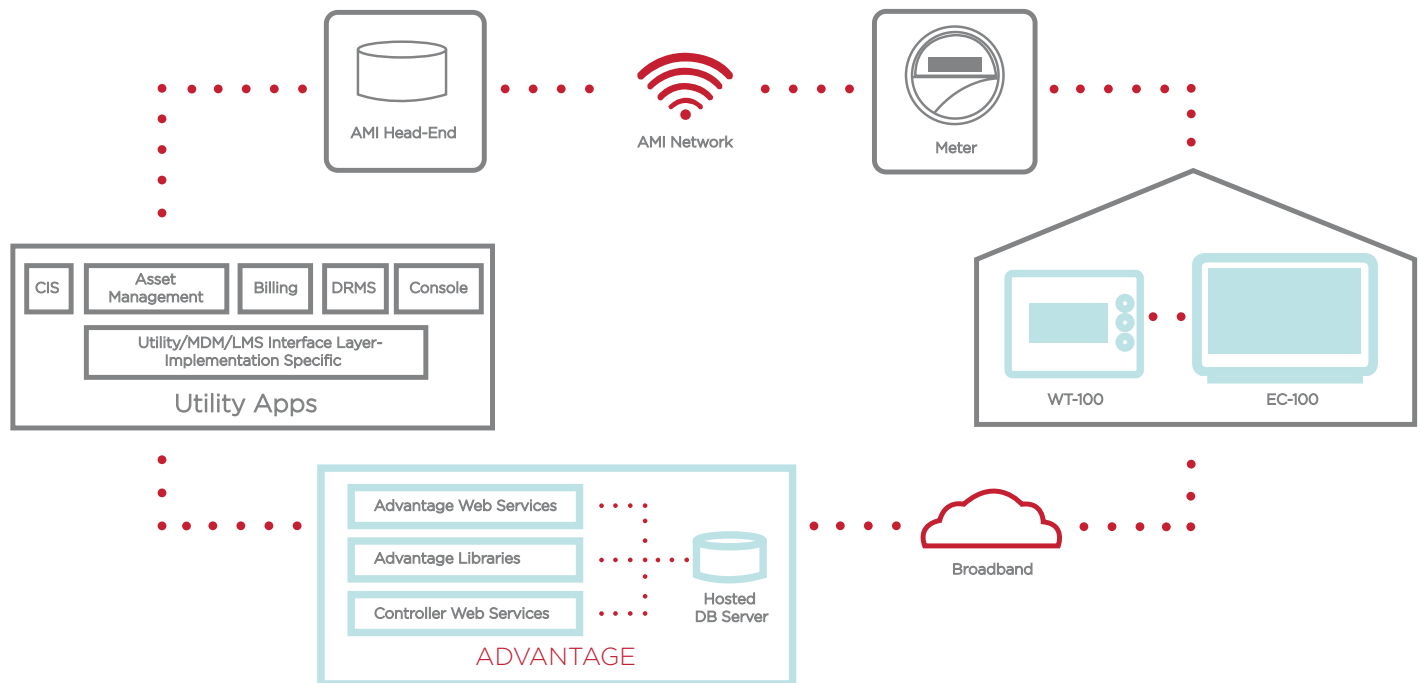
## Utility Management of Home Area Networks, at Any Scale

ADVANTAGE software logs individual customer actions while respecting consumer privacy. The software tracks and manages customer preferences and decisions across a network of any size. ADVANTAGE enables utilities to update their network of HAN devices easily with over-the-air software upgrades.

## Deployment and Administration

The ADVANTAGE platform can be deployed either in a Software-as-a-Service (SaaS) model or in the utility data center. The ADVANTAGE Management Console, an interactive web-based tool that monitors and controls EMS 100 in-home devices, is designed for a range of users from IT administrators to customer service representatives, for easy administration and data access.

## ADVANTAGE Software Architecture



ADVANTAGE is built with Service Oriented Architecture (SOA), including flexible REST-based web service APIs to drive scalability, reduce latency, enforce security and protect legacy systems.

## Key Features of Control4® ADVANTAGE

- Seamlessly integrates data into utility load management and demand response management systems
- Drives the exchange of valuable, actionable information between households and utilities
- Accesses disaggregated household consumption data (by device category) for rich insight beyond the meter
- Monitors and updates HAN devices and appliances remotely across thousands of households
- Brings the benefits of the smart grid to utility customers, whether or not they have a smart meter

## Make Any Meter Smart

Whether a utility relies on advanced metering infrastructure (AMI), a load management system (LMS), a demand response management system (DRMS), or legacy enterprise solutions to connect to HANs, Control4® can optimize and simplify implementation.

ADVANTAGE software is sold as part of the EMS 100 solution, along with Control4® EC-100 energy controllers and WT-100 thermostats.

## The ADVANTAGE Base Package

**Network Management**—Monitor and report on the network of deployed EC-100 energy controllers and other HAN devices.

**Provisioning**—Provision EC-100 energy controllers for rates, overrides, and demand response events. Provision the AMI application, load management or demand response management servers with EC-100 data.

**Communications**—Communicate via AMI and/or broadband for provisioning and HAN updates.

**Control4 Analytics**—Collect, analyze and compress residential usage data and deliver it nightly to the utility's back-end systems. Communicate with utility's load management to optimize dispatch of demand response and other events.

## Optional ADVANTAGE Software Modules

**HAN Update Module**—Send over-the-air wireless software and firmware updates to deployed EC-100 energy controllers to offer the latest features and functionality.

**Marketing Module**—Customize the look-and-feel of the EC-100 with utility logos and color schemes. Leverage two-way communications of EMS 100 to send public service announcements, special offers, alerts and promotions directly to customers' homes.

**Smart Profile Module**—Target demand response messaging or utility product offers to customer segments by device, group of devices, zip code or usage profiles.

**4Store™ Application Marketplace**—Develop and deliver unique applications to differentiate the in-home experience for customers.

### Open Source List

Web Server: Apache HTTP 2.2  
Application Server: Tomcat 6.0  
RDBMS: MySQL 5.1  
UI Framework: Adobe Flex/Action script 3.0  
Application Programming Language: Java 1.6/Grails 1.3.3  
Application Framework: Spring Roo [Flex Addon]  
Security Framework: Spring Security [ACEGI]  
Web Service Framework: Spring Web Services  
Database ORM: Hibernate 3.0

### Standards Supported

ZigBee SE v1.0  
(upgradeable to 2.0 when available)  
ZigBee Pro  
WiFi Certified b/g  
Linux 2.6  
Adobe Flash Lite  
Open SSH

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