IPKeys

SECURE TECHNOLOGY INTEGRATION
CONSULTING & SOFTWARE

Energy Interop Server & System Offerings – EISS™

Stand Alone and Embeddable

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Standalone Products

1/7/2013

EISS™

- OpenADR 2.0a-certified virtual top node (VTN) server suitable for utility or aggregator use
- Highly secure certificate based security model
- Demand Response (DR)
- Price Conveyance
- Real Time Meter Telemetry

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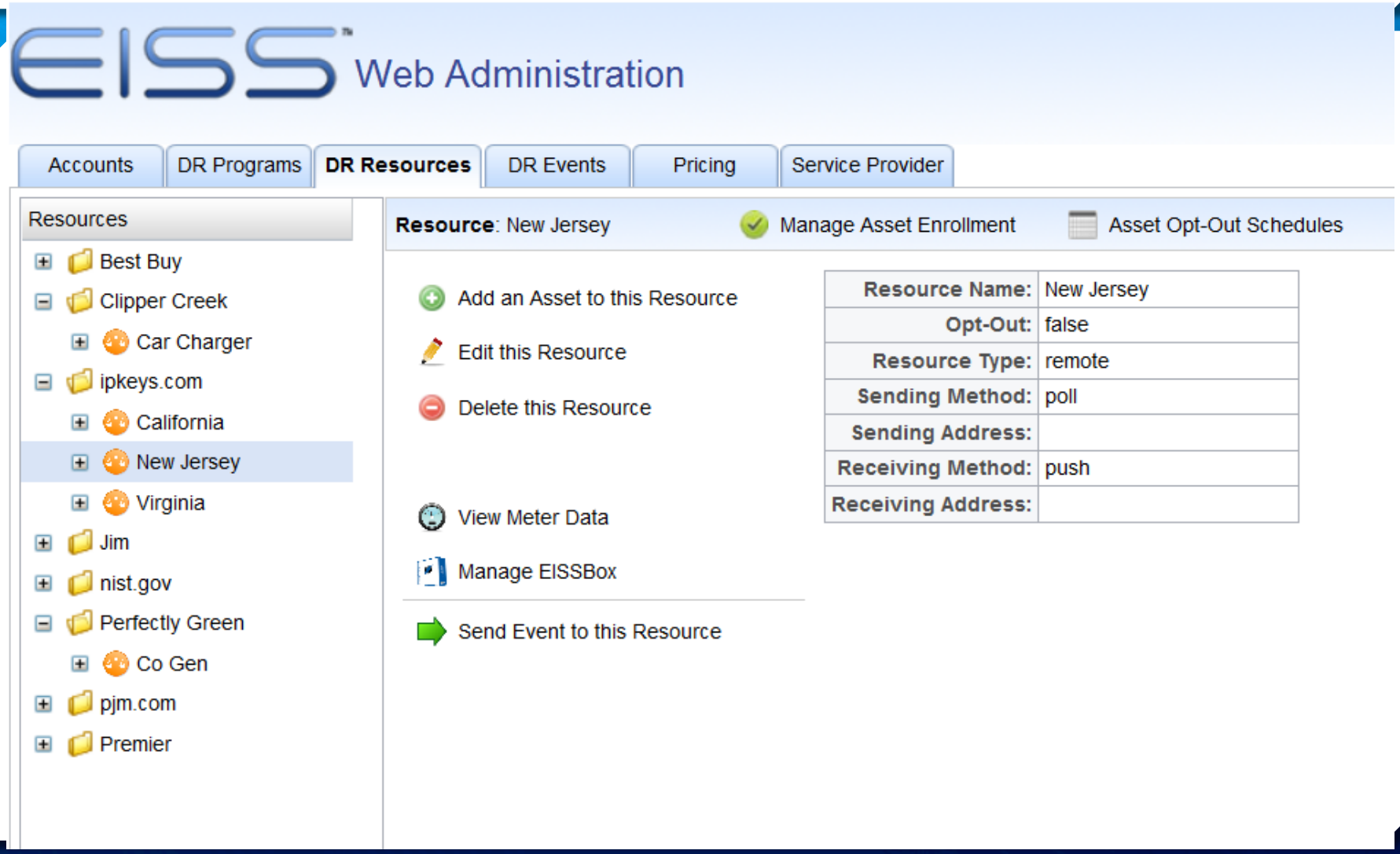
Account Setup



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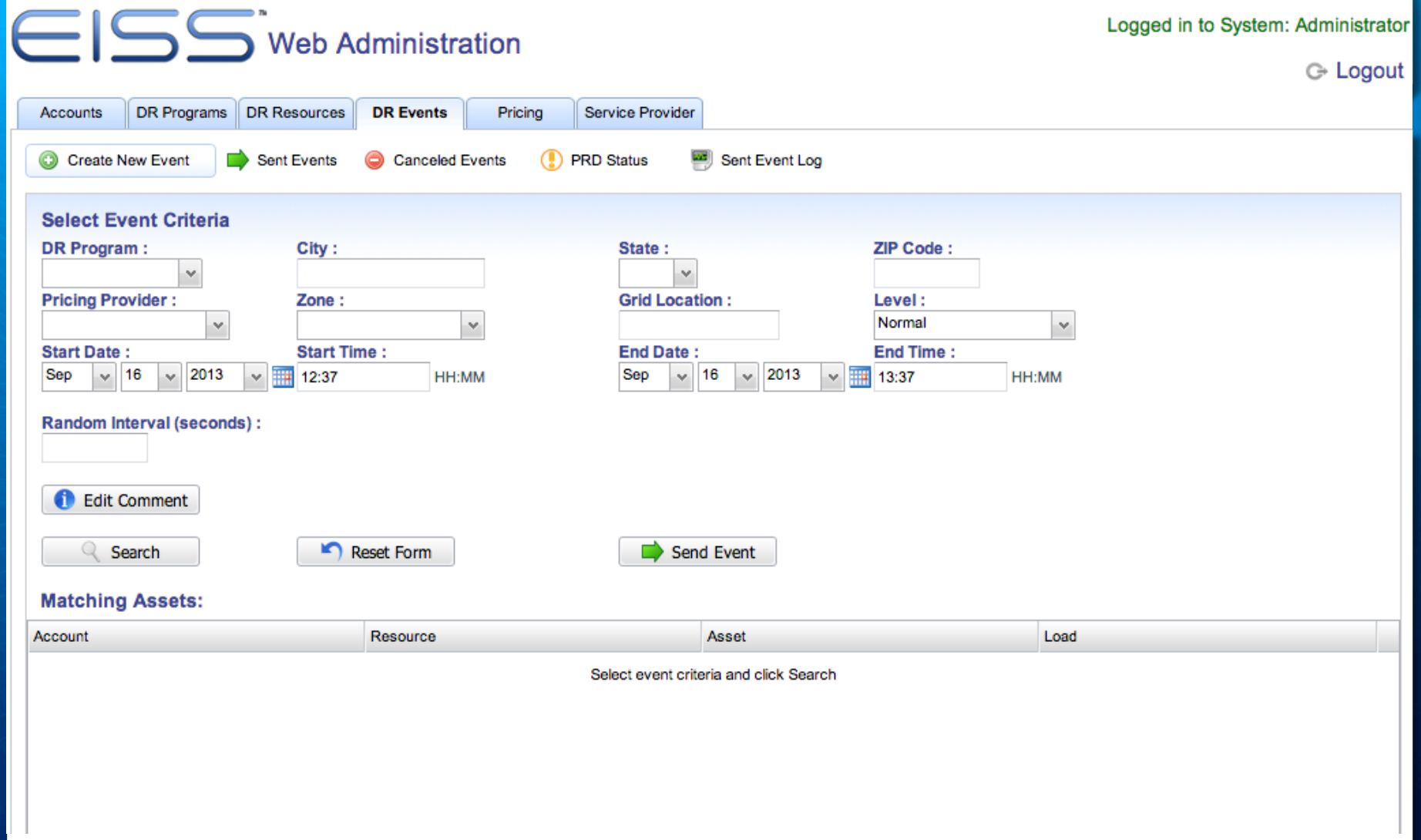
Events



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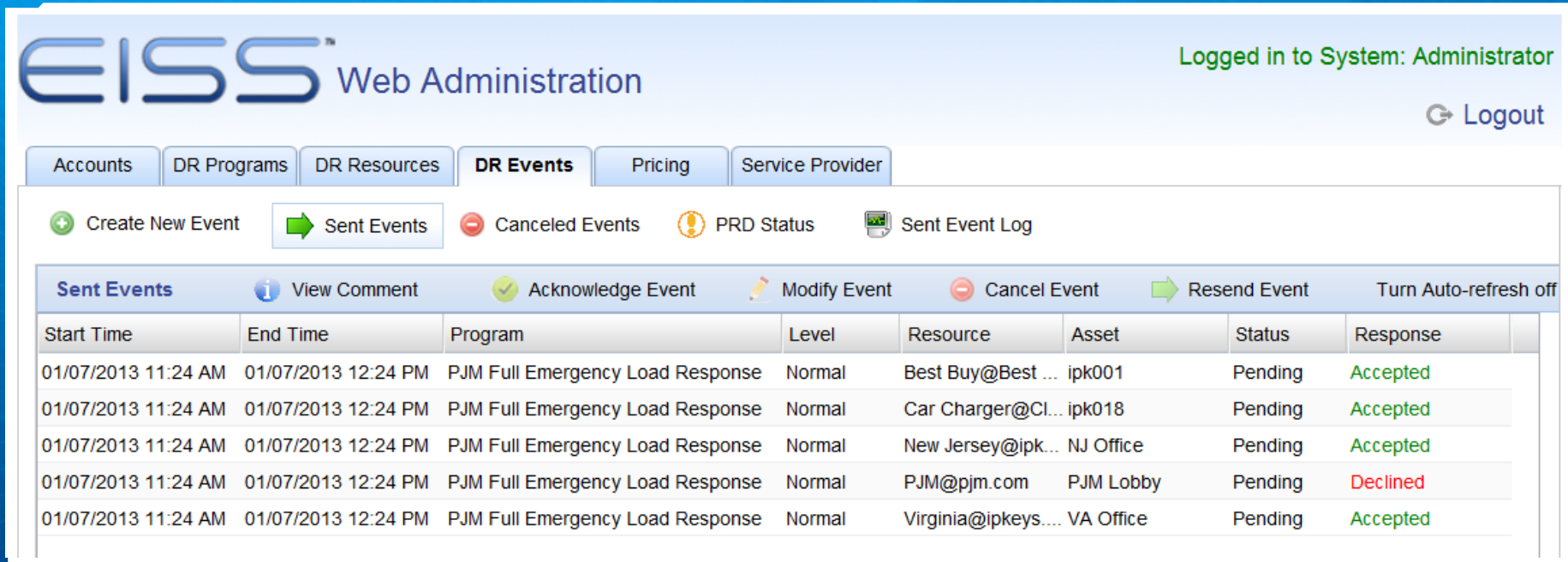
Events



Start Time	End Time	Program	Level	Resource	Asset	Status	Response
01/07/2013 11:24 AM	01/07/2013 12:24 PM	PJM Full Emergency Load Response	Normal	Best Buy@Best ...	ipk001	Pending	Accepted
01/07/2013 11:24 AM	01/07/2013 12:24 PM	PJM Full Emergency Load Response	Normal	Car Charger@Cl...	ipk018	Pending	Accepted
01/07/2013 11:24 AM	01/07/2013 12:24 PM	PJM Full Emergency Load Response	Normal	New Jersey@ipk...	NJ Office	Pending	Accepted
01/07/2013 11:24 AM	01/07/2013 12:24 PM	PJM Full Emergency Load Response	Normal	PJM@pjm.com	PJM Lobby	Pending	Declined
01/07/2013 11:24 AM	01/07/2013 12:24 PM	PJM Full Emergency Load Response	Normal	Virginia@ipkeys....	VA Office	Pending	Accepted

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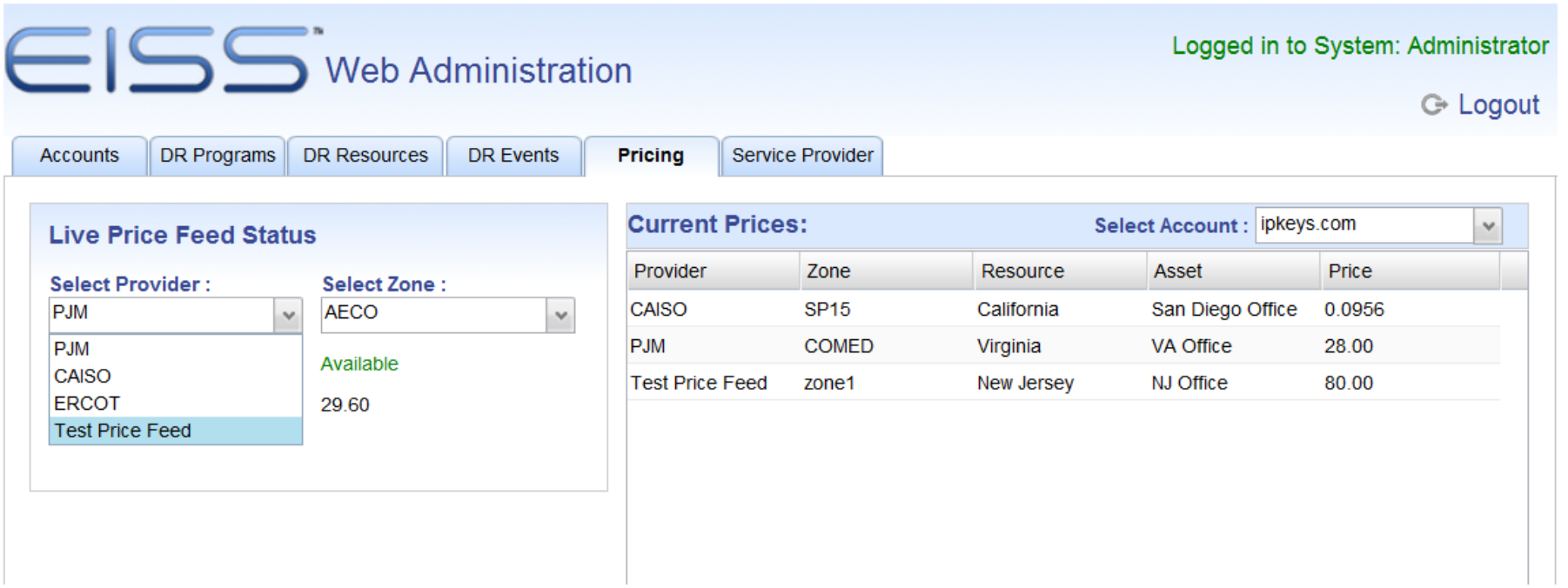
Price Conveyance



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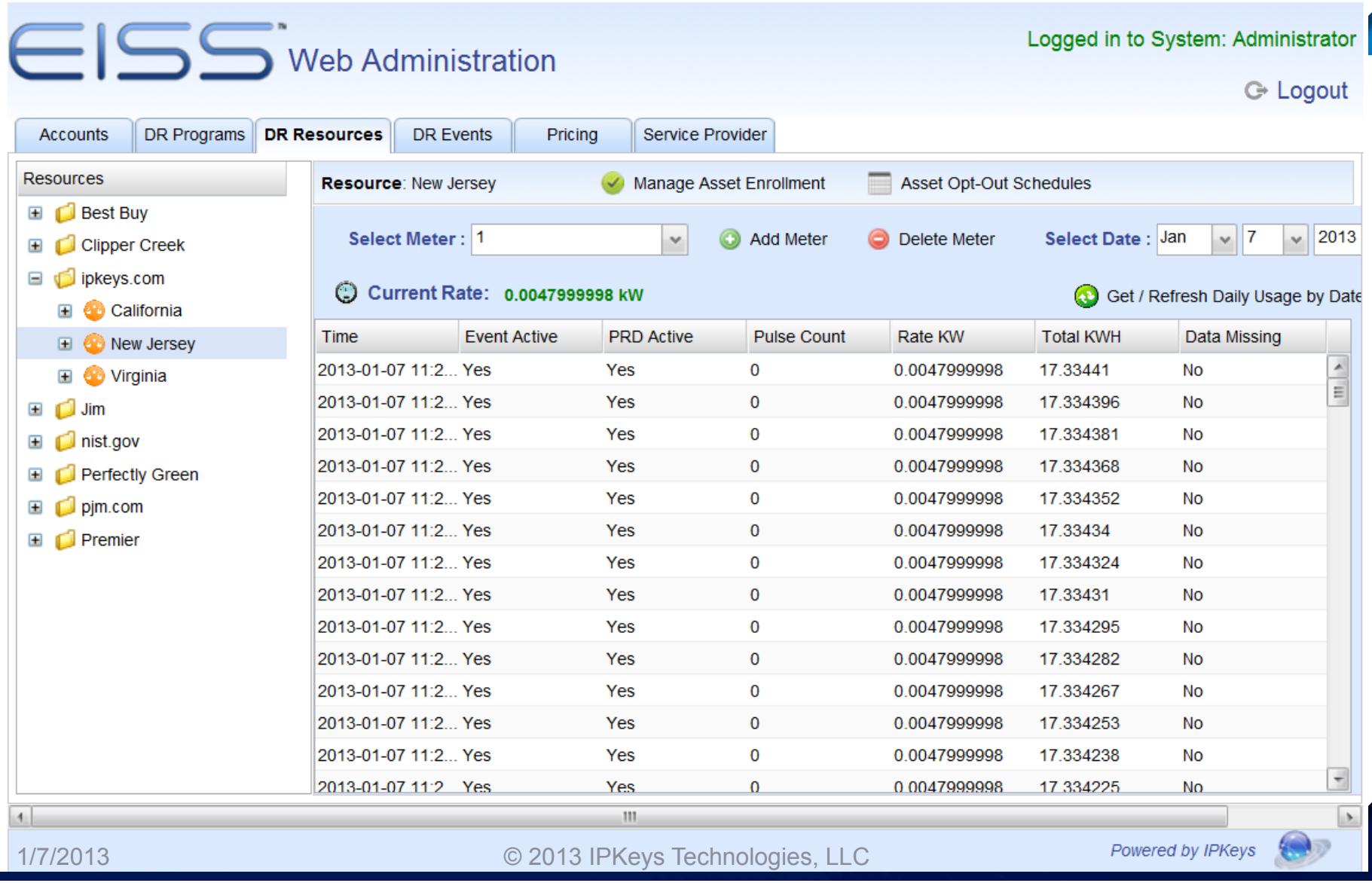
Real Time Meter Telemetry



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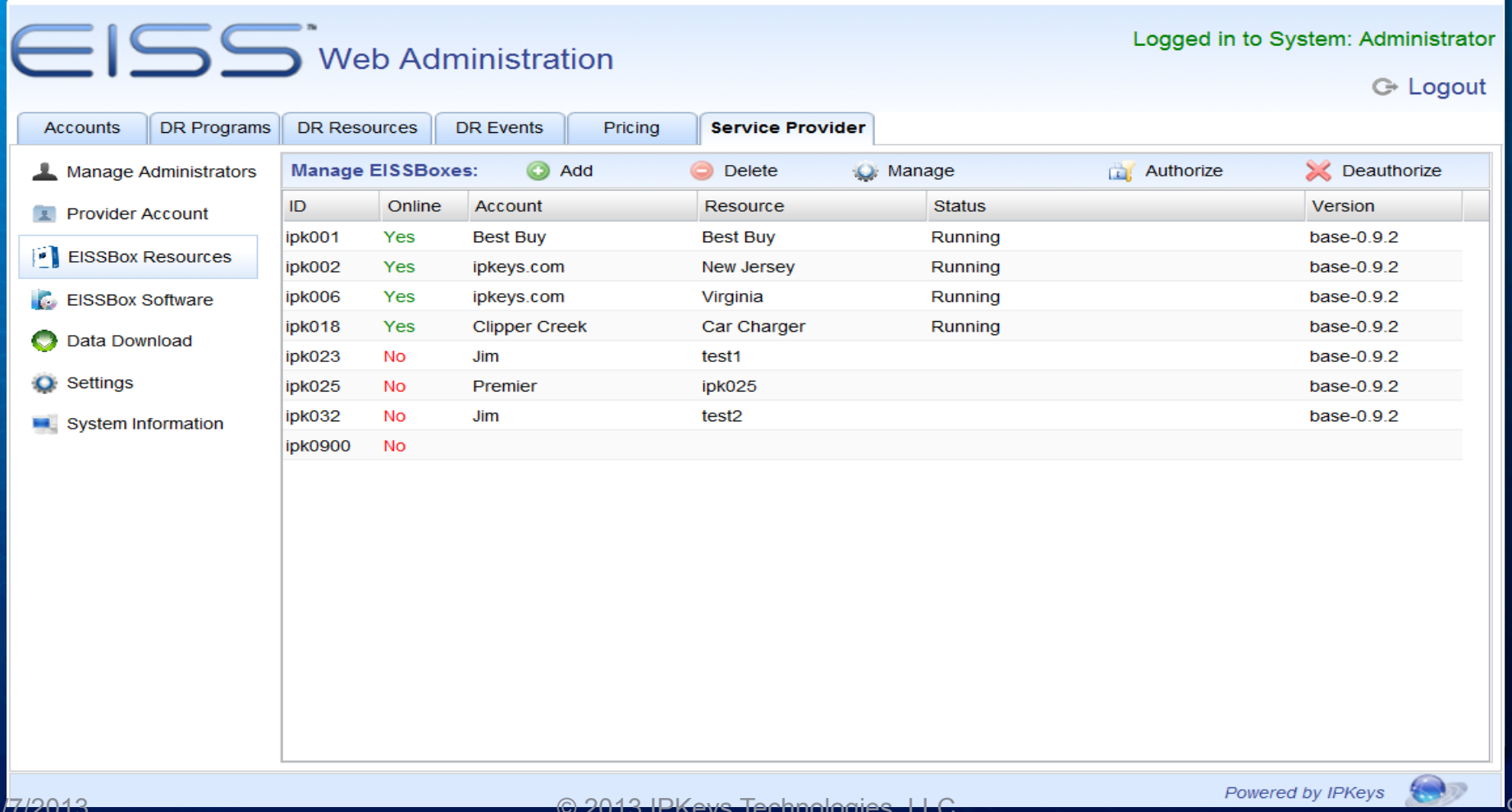
OTW Configuration

Also available as a stand alone element manager



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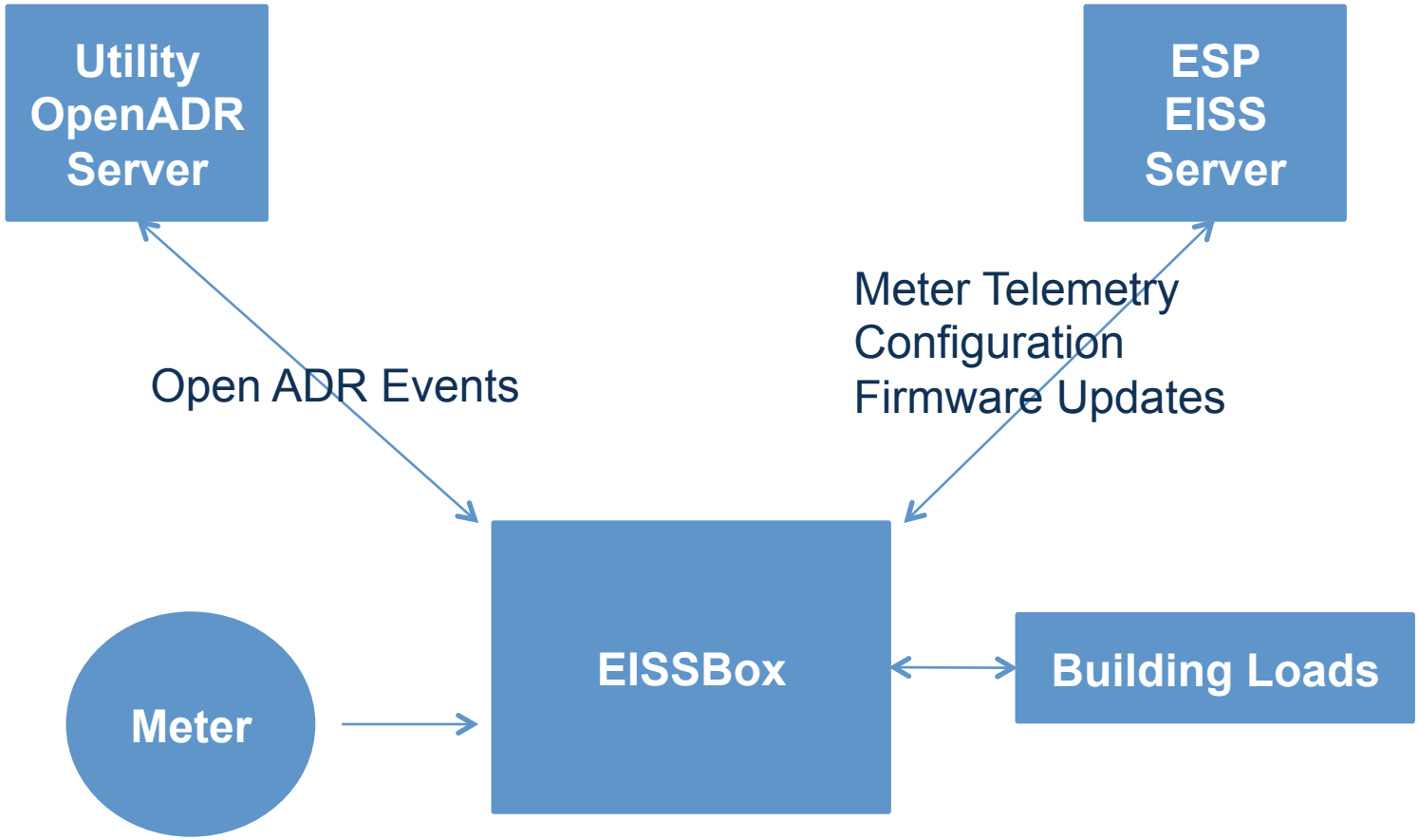
OpenADR 2.0-capable Metering Solution for ESP/Demand Aggregators



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EISSBox

- An OpenADR 2.0a-certified virtual end node (VEN) endpoint
- Designed to act as a gateway between OpenADR 2.0 and existing building automation systems
- Available in dry contact and Modbus versions
- Eliminates the need to replace building automation systems in order to participate in AutoDR programs

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EISSBox – Dry Contact

- 2 - 10A Dry Contacts standard
- 2 additional relays optional
- 7 KYZ pulse meter / CT inputs
- Opt-in button option
- Tropos mesh radio option
- Ethernet, WiFi, Cellular

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EISSBox Modbus (Slave)

- Events, Prices, opt
- Count down timers
- Meter data
- 2 NIC ports

Tx = 0: Err = 0: ID = 1: F = 02: SR = 50ms
No Connection

	Alias	00000
0	Error	0
1	Event Status	0
2		
3		
4		
5		
6		

Tx = 0: Err = 0: ID = 1: F = 15: SR = 50ms
No Connection

	Alias	00000
0	PRD	1
1	OPT	1
2		
3		
4		
5		
6		

Tx = 0: Err = 0: ID = 1: F = 04: SR = 50ms
No Connection

	Alias	00000
0	Asset #	0
1	Price (cents)	1710
2	Time to start	0
3	Time to end	57
4	Program #	1
5	Signal Level	2
6		

Tx = 0: Err = 0: ID = 1: F = 16: SR = 6000
No Connection

	Alias	00000
0	Meter KW	225
1	Meter KWH	224
2	Time	2012
3	Time	4093
4	Time	50
5	Meter count	
6	MeterID	

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Embedded Solutions

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EISSClient Embedded

- EISSClient uses the following methods to send information to an external Java programs:

Set initial Properties	public void initialize(Properties properties) {
Shutdown	public void shutdown() {
Event Details	public void receivedEvent(Map<String,Object> event) {
Event Start Notification	public void startEvent(String id, String program, String level, List<String> assets) {
Change Signal Level	public void changeSignalLevel(String id, String program, String newValue, List<String> assets) {
Event Stop Notification	public void stopEvent(String id, String program, List<String> assets) {
Pricing Data	public String priceEvent(String assetName, float price) {
Returns opt state	public String getOpt() {
Timer to event start	public void pendingEvent(String program, int minutesToStart, int minutesToEnd) {
Timer to even start	public void activeEvent(String program, int minutesToStart, int minutesToEnd) {
Returns meter data	public String getMeterData() {
Sets error state	public void setError(String errorType) {
Clears error state	public void clearError() {
Configures meters	public void setMeters(Map<String,String> meters) {
Configures Assets	public void setAssets(Map<String,String> assets) {
Sets opt state	public void setOpt(String opt) {

- Designed to be directly embedded into OEM equipment to be OpenADR 2.0 compliant
- JAVA-based for maximum flexibility

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EISS Embedded

Calling DR as Generation

IPKeys Technologies LLC:

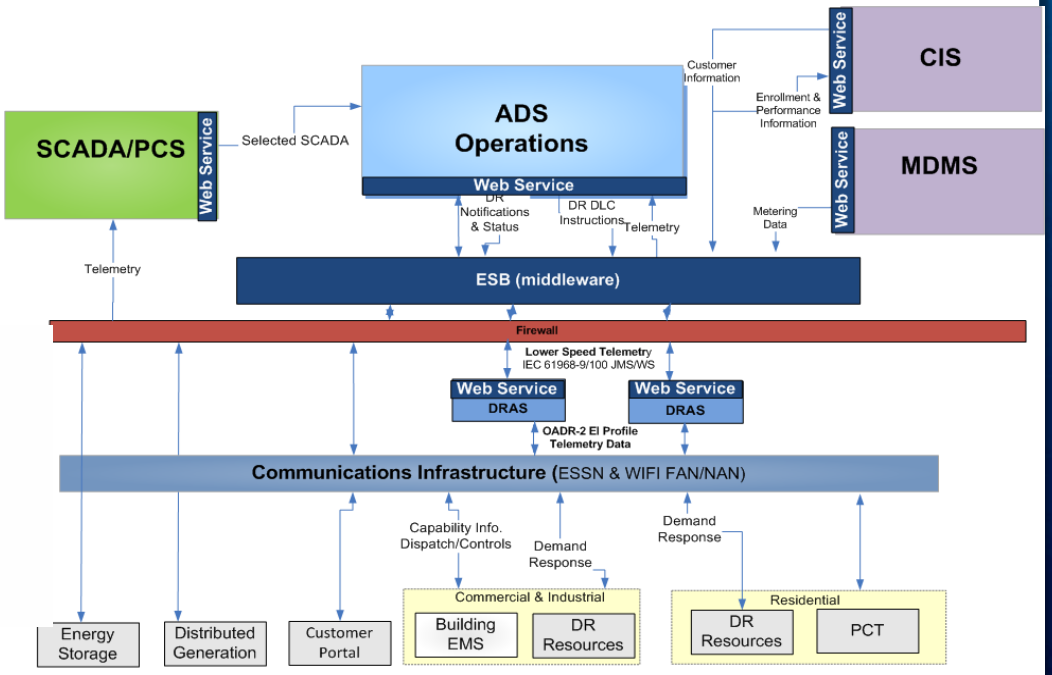
EISS™ OpenADR 2.0 Virtual Top Node (VTN) Web API

A web-based API for provisioning and initiating events with an EISS™ OpenADR 2.0 VTN.

External System Integration via REST web services API

Event Properties	Description
eventID	Required. A globally unique ID for the event. Although a required property, the user of the API may omit the property and EISS™ will automatically generate one.
modNumber	Required. This is an integer that starts at 0, and is incremented by 1 each time and event is modified. EISS™ will automatically manage this property.
program	The name of the program for this event.
vtnComment	Optional. Arbitrary message text included in the event as a comment.
modReason	Optional. Arbitrary message text included when an event is modified.
priority	Optional. An integer indicating the events priority. Higher numbers indicate higher priority.
modificationTime	A timestamp indicating the time the time an event was modified. EISS™ automatically manages this property.

Energy Management Integration via IEC 61968-9



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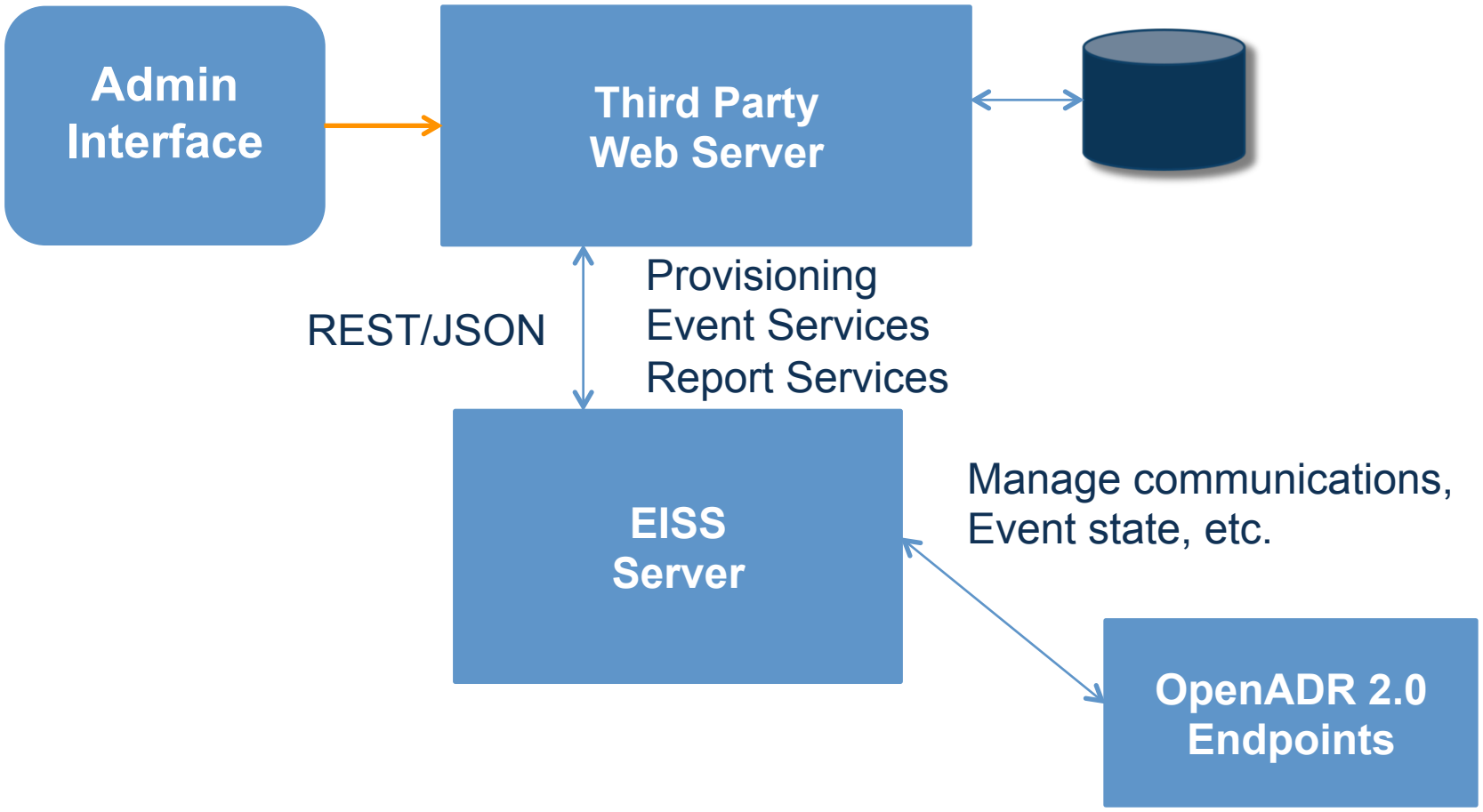
EISS Server Embedded



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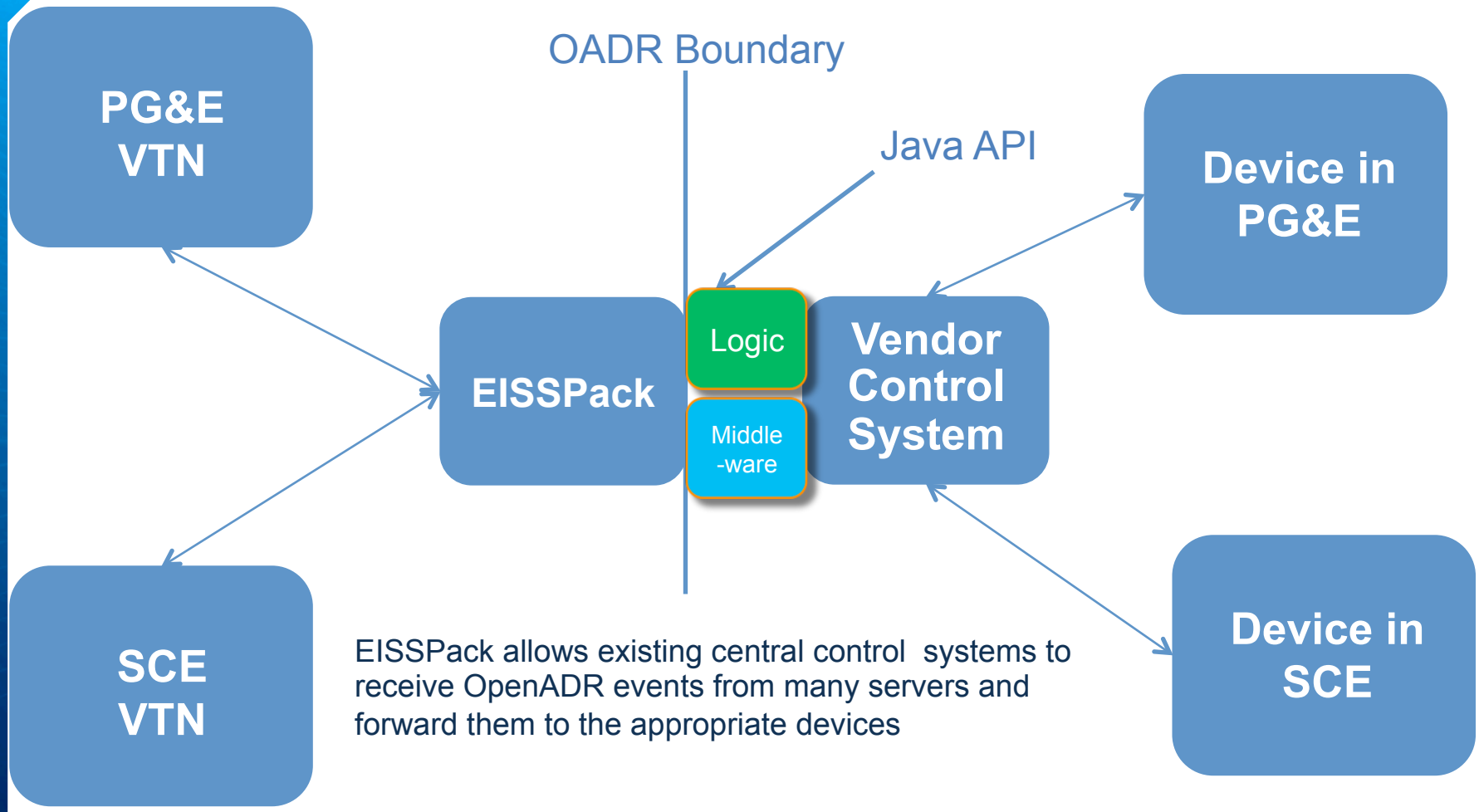
EISSPack Architecture



EISSPack allows existing central control systems to receive OpenADR events from many servers and forward them to the appropriate devices

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EISS Product information available at:

http://eiss.ipkeys.com