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# California Demand Response Business Network (DRBizNet)

**Ali Vojdani**

**June 10, 2004**

# Project Team

- **UISOL**
  - Ali Vojdani (*Project Manager*)
  - Scott Neumann
- **Dynamic Networks**
  - Eamonn McCormick
- **Nexant**
  - Dan Engel
  - Robert Hinkle
- **Savvion**
  - Omid Razavi
- **TIBCO**
  - Don Adams

# Utility Integration Solutions, Inc.

[WWW.UISOL.COM](http://WWW.UISOL.COM)

**Mission: Improve utility performance through business processes integration and workflow automation**

- **UISOL specializes in:**
  - **Utility business processes**
  - **Utility systems integration**
  - **Utility IT standards (e.g. CIM)**
- **UISOL integration software partners:**
  - **SAVVION**
  - **TIBCO**
- **UISOL customers in California include CAISO, CEC, PG&E, SVP, and WAPA**



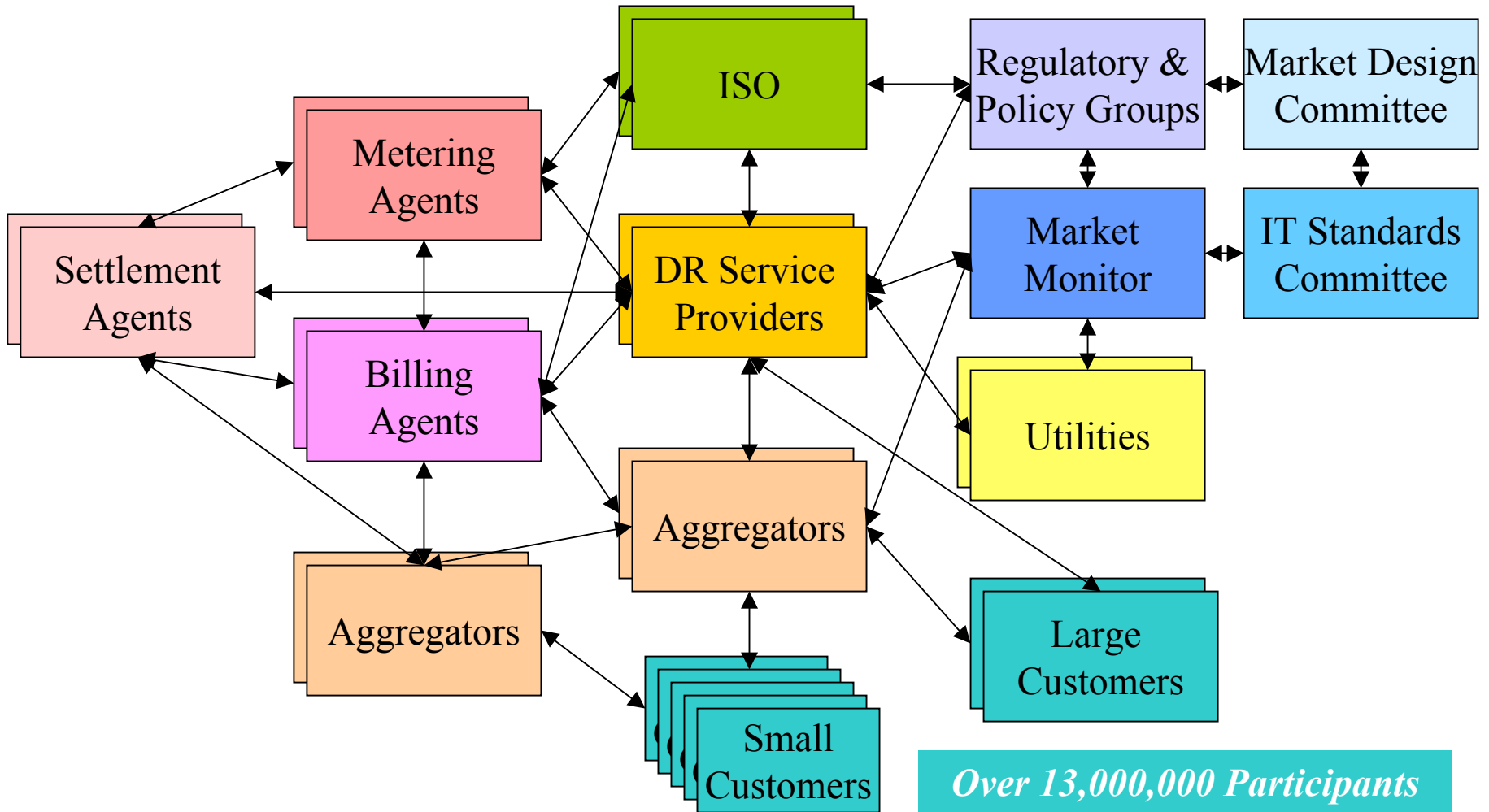
# Agenda

<b>2:00-2:05</b>	<b>Introduction</b>	<b>Gaymond Yee</b>	<b>5 minutes</b>
<b>2:05-2:25</b>	<b>DRBizNet Project Overview</b>	<b>Ali Vojdani</b>	<b>20 minutes</b>
<b>2:25-2:45</b>	<b>Assessment of the AS-IS State of DR Market in California</b>	<b>Dan Engel</b>	<b>20 minutes</b>
<b>2:45-3:05</b>	<b>Vision of the TO-BE State &amp; the Benefits of DRBizNet</b>	<b>Dan Engel</b>	<b>20 minutes</b>
<b>3:05-3:15</b>	<b>Coffee Break</b>		<b>10 minutes</b>
<b>3:15-3:40</b>	<b>DRBizNet Business Architecture Requirements</b>	<b>Eamonn McCormick</b>	<b>25 minutes</b>
<b>3:40-4:15</b>	<b>Architecting the DRBizNet (Work in Progress)</b>	<b>Scott Neumann</b>	<b>35 minutes</b>
<b>4:15-4:30</b>	<b>QA &amp; Wrap Up</b>	<b>Ali Vojdani &amp; Gaymond Yee</b>	<b>15 minutes</b>

# Objectives

- Enable a “10X10” improvement in today’s DR systems integration technology by designing:
  1. A DR Real-Time Distributed Business Network (DRBizNet) **architecture**; and
  2. A **roadmap** for construction of DRBizNet in California.
- Time frame for completion of DRBizNet implementation could be ten (10) years out, but implementation planning needs to start soon.

# DR Value Network

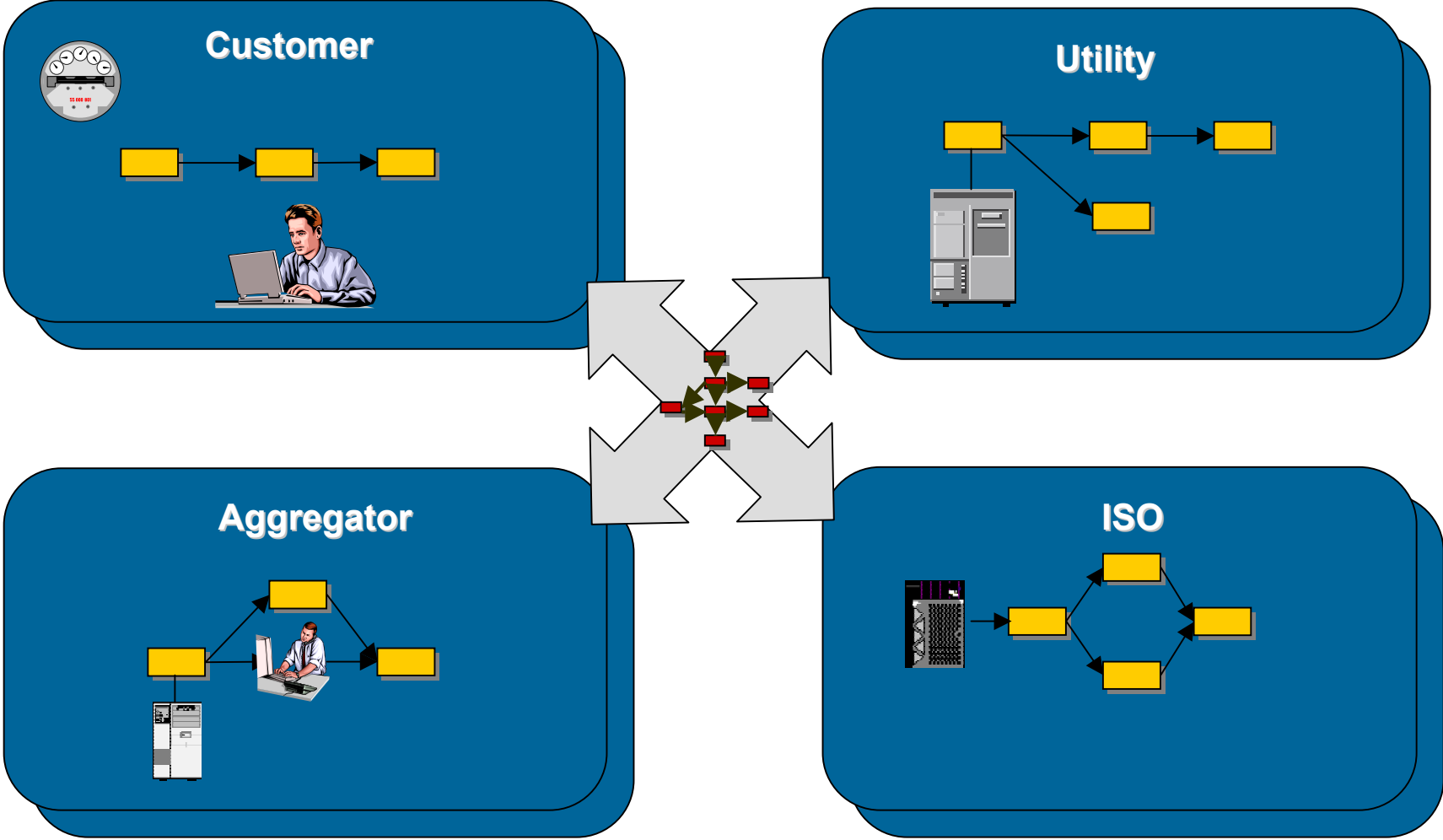


# Motivation

To achieve a significant level of DR, one needs:

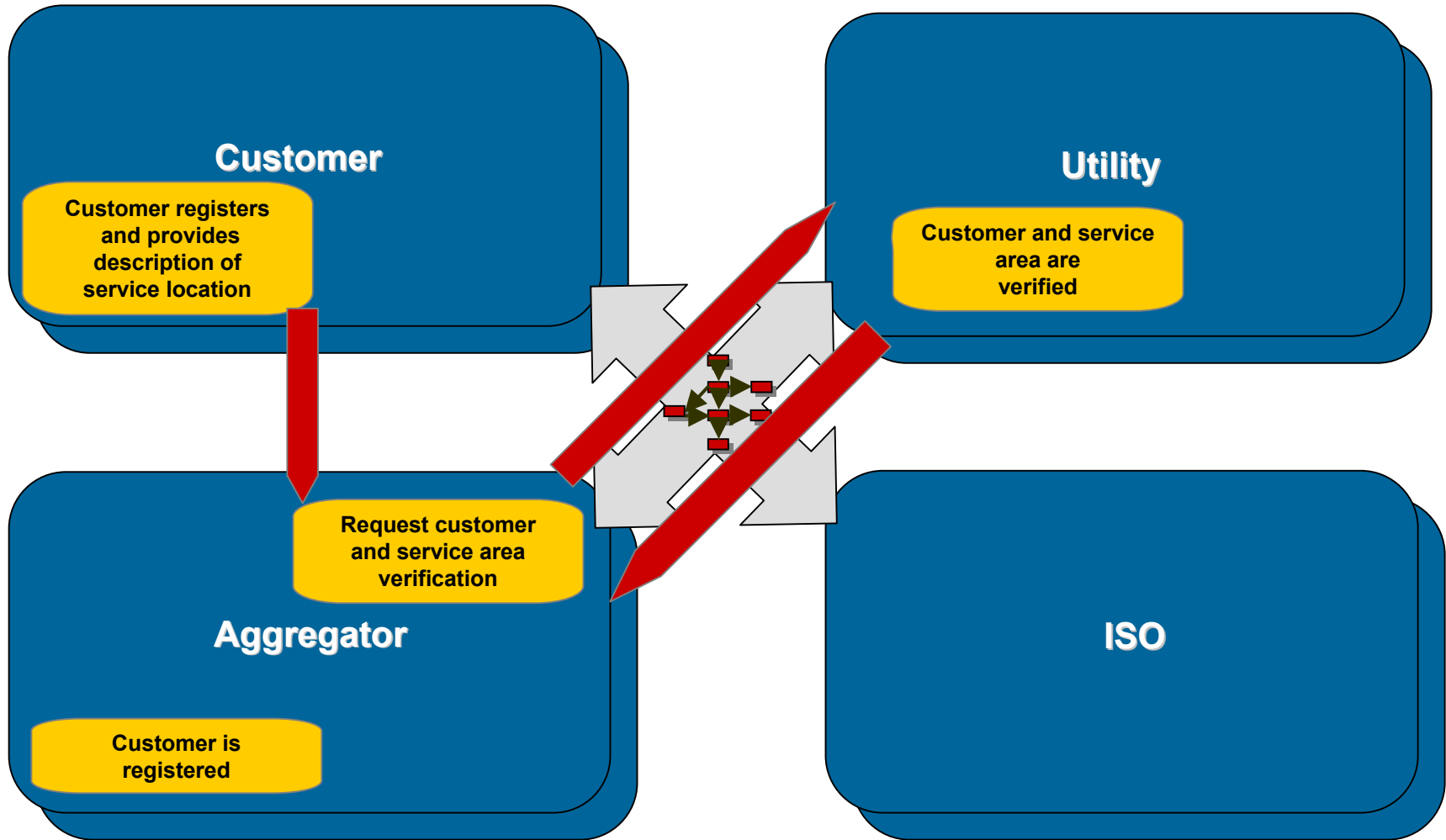
1. Real-time communication with the DR sources
2. Real-time coordination of business processes and workflow among DR entities
3. Communication and coordination standards

# Business Process Integration/Workflow

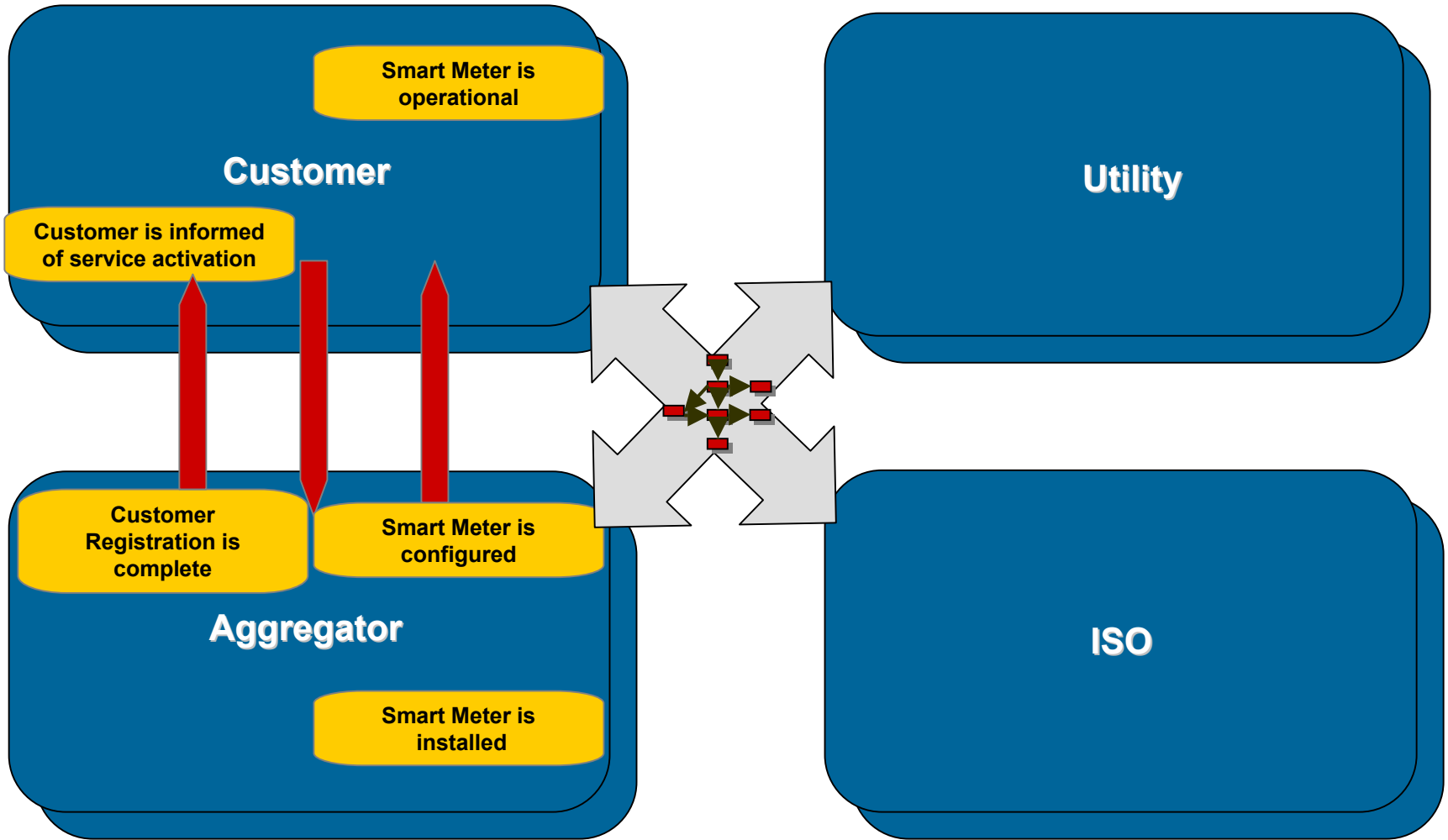




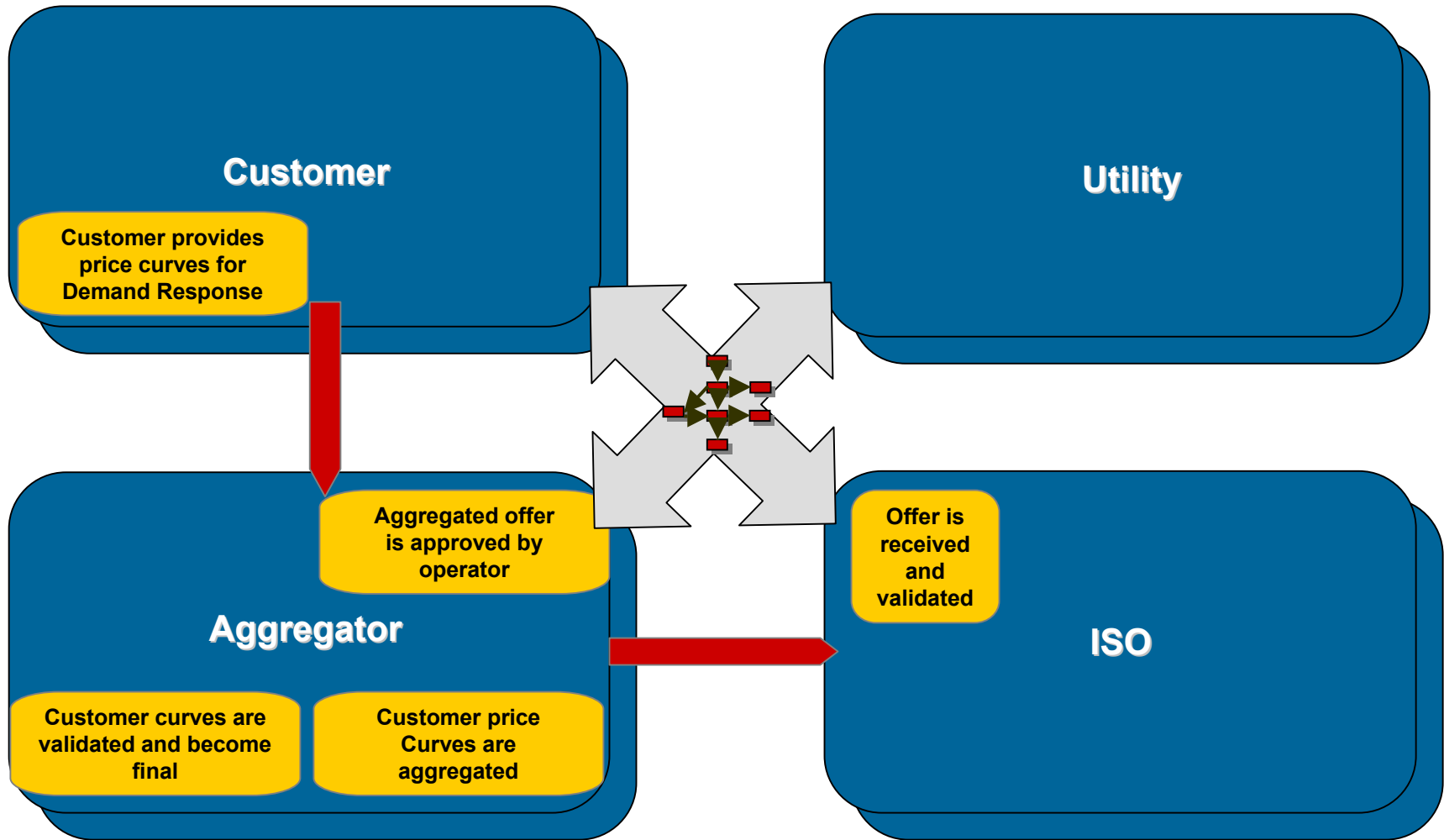
# Example: Customer Registration



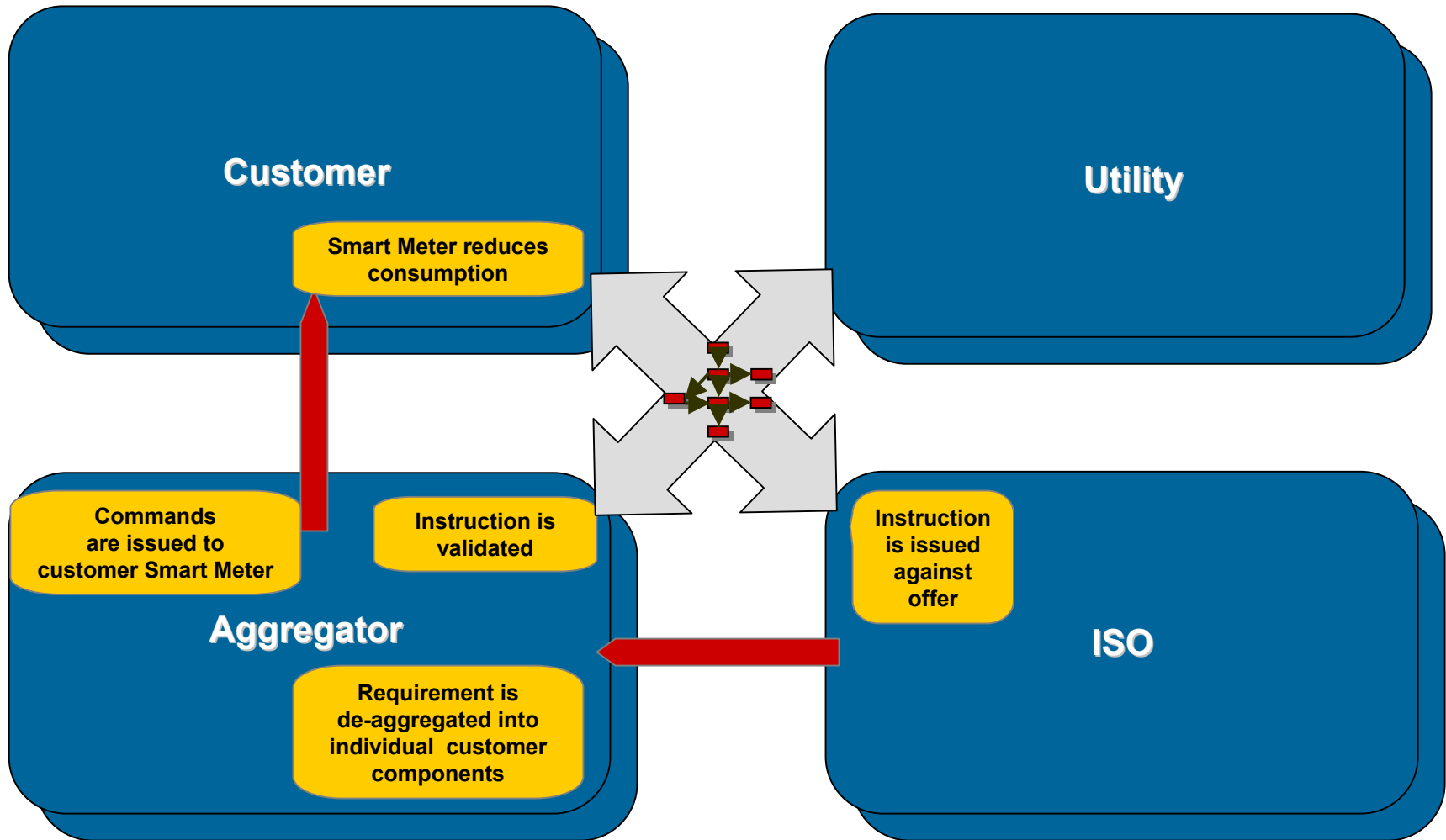
# Example: Meter Installation



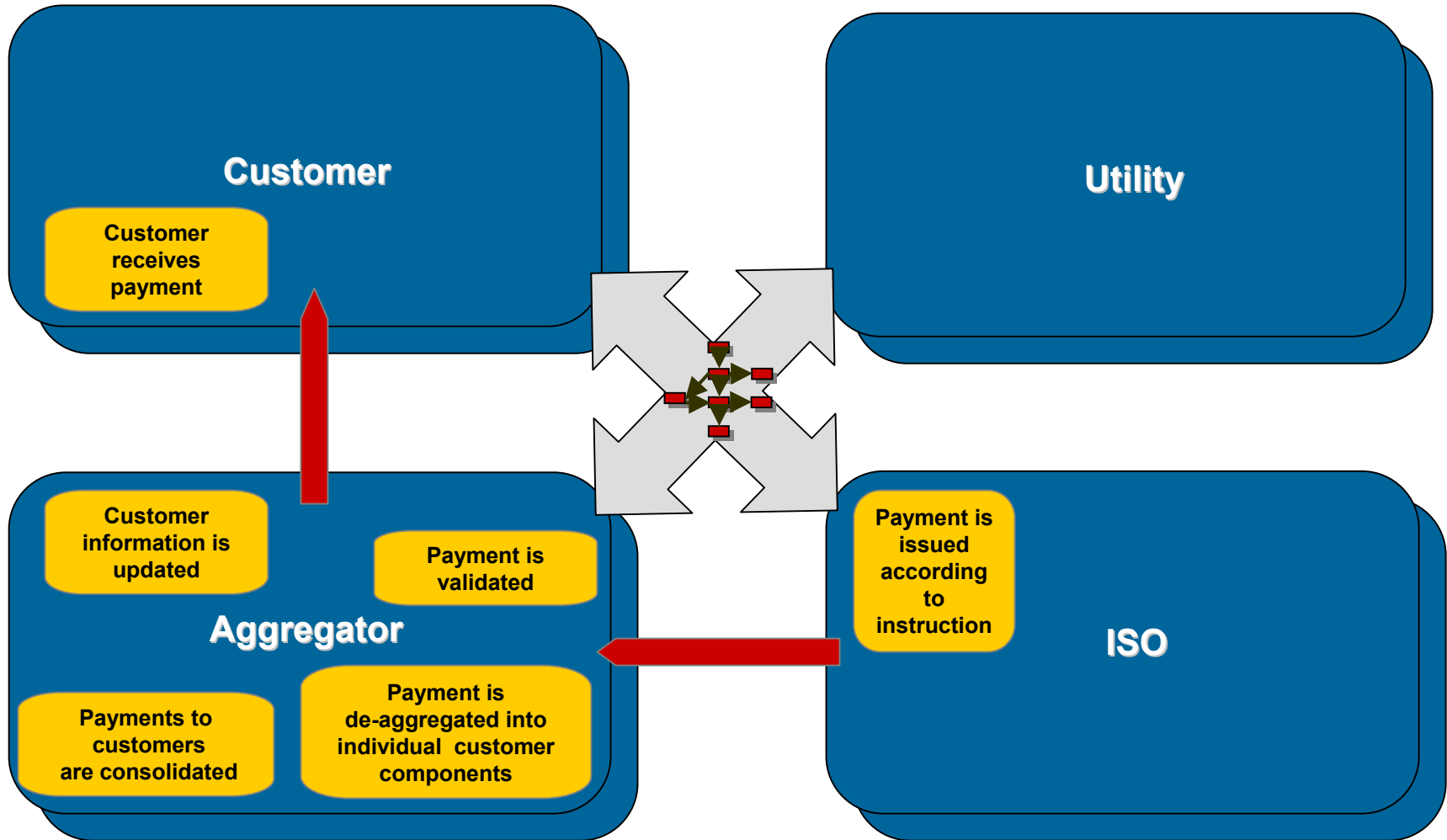
# Example: Customer Price Curve Aggregation



# Example: Dispatch



# Example: Settlement



# DRBizNet

- **DRBizNet is a real-time distributed business network needed to facilitate and maximize the DR in California**
- **DRBizNet will consist of a set of real-time communication and coordination components (services):**
  - **DR Registry**
  - **DR Web Services**
  - **DR Message Bus**
  - **DR Connector**
  - **DR Portal**
  - **DR Intelligent Agents**

# Benefits

- **DRBizNet could drastically reduce California's total cost of ownership of the DR infrastructure, and can increase the magnitude of DR available in California.**
- **The sooner DRBizNet is architected, the less costly it will be to carry forward into the future the incompatible (legacy) DR systems that are being built.**

# High-Level Requirements

- **Efficient real-time communications**
- **Wide-area coordination**
- **Flexibility**
- **Cost minimization**
- **Speed of operation**
- **Multi-vendor interoperability**
- **Reliability**
- **Security**
- **Scalability**



# FACTS About DRBizNet

- **The intention of this project is NOT to recommend a huge central infrastructure that would compete with vendors.**
- **We are sensitive to the large investments already made in legacy DR systems in California.**
- **We are aware that several vendors have DR solutions based on real-time messaging technology; we are not reinventing the wheel.**
- **Distributed business process integration (e.g., wide-area workflow automation) is a relatively new technology.**

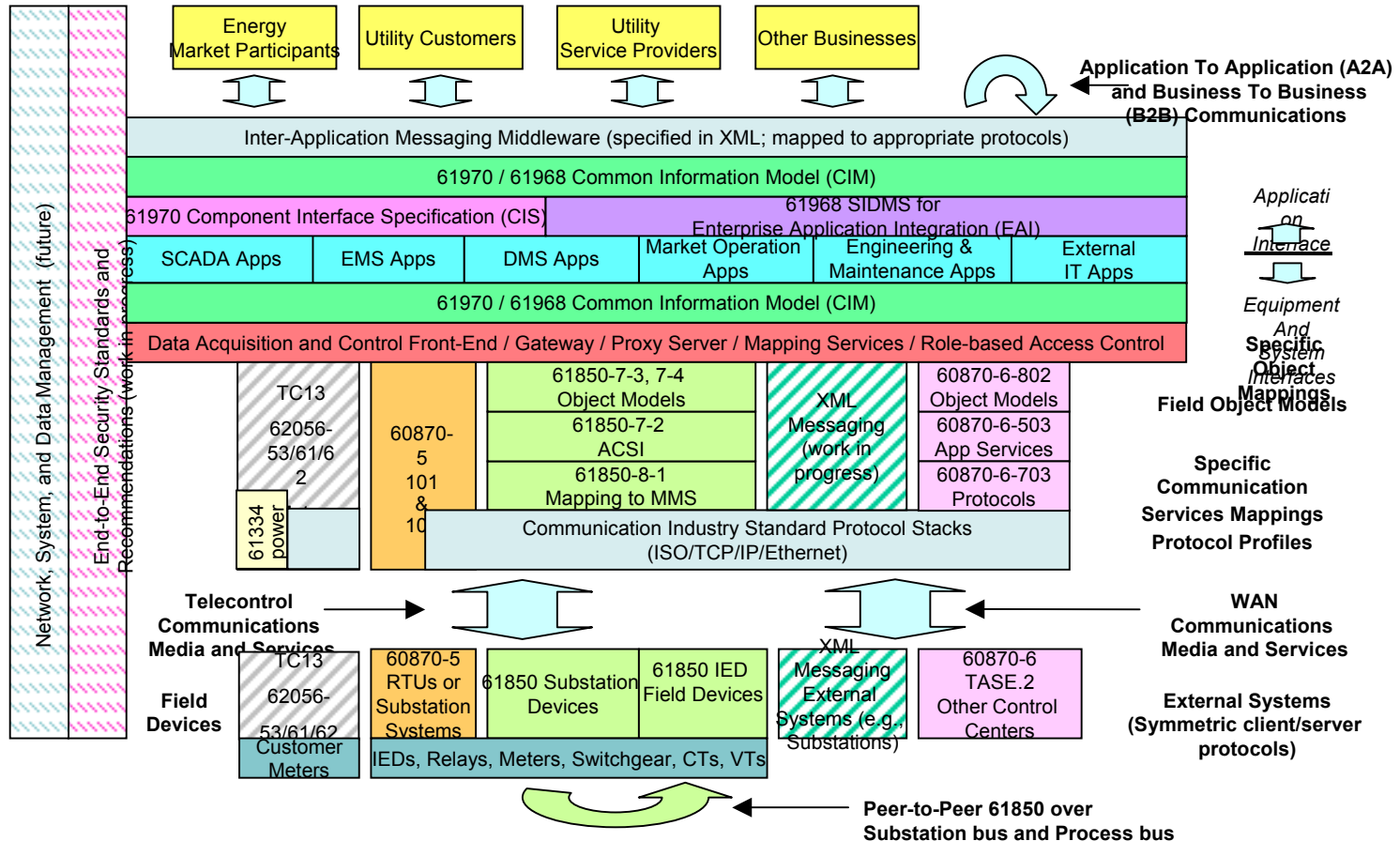
# Challenges

- **Need for standard DR markets design**
- **Need for standard DR real-time communication and coordination Protocols**
- **Others issues noted in Task 4 Report**

# Relevant Experiences

- **Utility Industry**
  - Existing DR systems in California and elsewhere
  - Infrastructure supporting retail deregulation in California, Texas, Ontario, Victoria, ...
  - Infrastructure supporting wholesale deregulation (e.g., e-Tag, OASIS, ISOs)
  - Utility industry standardization successes (e.g., ICCP, CIM)
- **Other Industries**
  - Straight-Through Processing (STP) in Financial industry
  - Newly proposed real-time communications and coordination solutions for Homeland Security
  - Procurement networks in retail industry
  - Integration solutions supporting HIPAA (Health Insurance Portability and Accountability Act)

# IEC TC57 Standards and Relationships



\*Notes: 1) Solid colors correlate different parts of protocols within the architecture.  
 2) Non-solid patterns represent areas that are future work, or work in progress, or related work provided by another IEC TC.

# Stakeholders

- **State of California**
- **California Utilities**
- **Service providers**
- **Other DR network entities**

# Project Tasks

- 1. Assess the AS-IS State**
- 2. Vision the TO-BE State**
- 3. Catalogue Benefits of DRBizNet**
- 4. Analyze the Gaps**
- 5. Develop Business Architecture Requirements**
- 6. Develop DRBizNet Architecture**
- 7. Assess State-of-the-Art in Integration Technology**
- 8. Demonstrate the Concepts through a Prototype**
- 9. Develop an Implementation Roadmap**
- 10. Document and Communicate R&D Results**

# Project Schedule & Status

ID	Task Name	Start	Finish	Qtr 1, 2004			Qtr 2, 2004			Qtr 3, 2004			Qtr 4, 2004			Qtr 1, 2005			Qt
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	Assess the AS IS State (Task 1)	Mon 2/2/04	Fri 4/2/04	Hexant,UISOL															
2	Vision the TO-BE State (Task 2)	Mon 3/1/04	Fri 5/7/04	Hexant,UISOL															
3	Catalogue Benefits of DRBNet (Task 3)	Mon 4/5/04	Thu 5/13/04	Hexant,UISOL															
4	Analyze the Gaps (Task 4)	Mon 4/5/04	Thu 5/13/04	Hexant,UISOL															
5	Develop Business Architecture Requirements (Task 5)	Mon 4/5/04	Fri 8/27/04	Hexant,UISOL			Dynamic Networks,UISOL												
6	Develop DRBNet Architecture (Task 6)	Mon 7/5/04	Fri 10/29/04				Dynamic Networks,UISOL												
7	Assess State of the Art in Integration Technology (Task 7)	Mon 5/3/04	Fri 11/26/04				UISOL												
8	Demonstrate the Integration Concepts through a Prototype (Task 8)	Mon 8/2/04	Fri 12/24/04						UISOL, Savvion										
9	Develop an Implementation Roadmap (Task 9)	Mon 12/6/04	Fri 1/28/05								UISOL								
10	<b>Document and Communicate R&amp;D Results (Task 10)</b>	<b>Mon 2/2/04</b>	<b>Fri 1/28/05</b>	[Summary Bar]															

# Project Team

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  - Omid Razavi



# More Information

- **Contact**

[Vojdani@UISOL.COM](mailto:Vojdani@UISOL.COM)

- **Access DRBizNet Project Management Portal**

<http://DR.UISOL.COM>

# Wrap-Up

- **The objective of this project is to develop a high-level architecture and a roadmap for developing a real-time distributed business network in California for DR.**
- **DRBizNet could reduce total cost of ownership of DR infrastructure, and maximize DR in California.**
- **The project team has completed Tasks 1-4 of the project; other tasks are in progress.**
- **The project team will complete the remaining tasks by the 1/31/05. A final workshop is targeted for January of 2005.**
- **The tasks reports are available on the DRBizNet Project Management Portal at <http://DR.UISOL.COM>\*.**

*\*Send an e-mail to [vojdani@uisol.com](mailto:vojdani@uisol.com) to register.*

# DRBizNet Implementation Priorities

	"TO-BE" ATTRIBUTES	Immediate	Mid-term	Long-term
Economic Elements	Low cost of participation		✓	
	Sufficient level of economic benefits	✓	✓	
IT Elements	Flexible DR Business Architecture	✓	✓	
	Highly Integrated IT Infrastructure for DR		✓	✓
Market Operations	Broad base of DR programs		✓	✓
	Consistency of DR program offerings	✓	✓	
	Use of DR as a reliable power resource		✓	✓
	Scalability of DR Programs		✓	✓
	High penetration across customer classes			✓
	Voluntary and default programs		✓	✓
	High level of customer awareness	✓	✓	
Policy Elements	Active market monitoring by regulators	✓	✓	✓
	Standardized market rules & regulations	✓	✓	
	Quality assurance for DR services		✓	✓

# Next Steps

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