



# nef

electric power engineering

## Outage Management System Overview

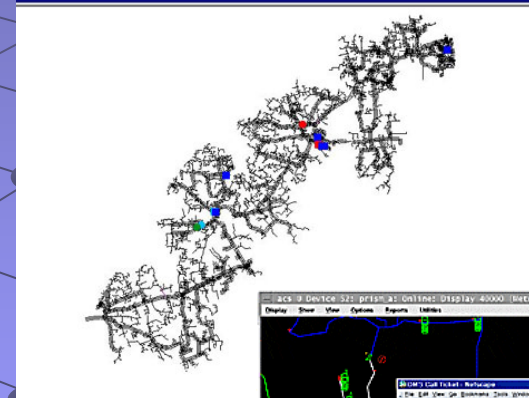
Your Power  
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June 9, 2009



# Definitions

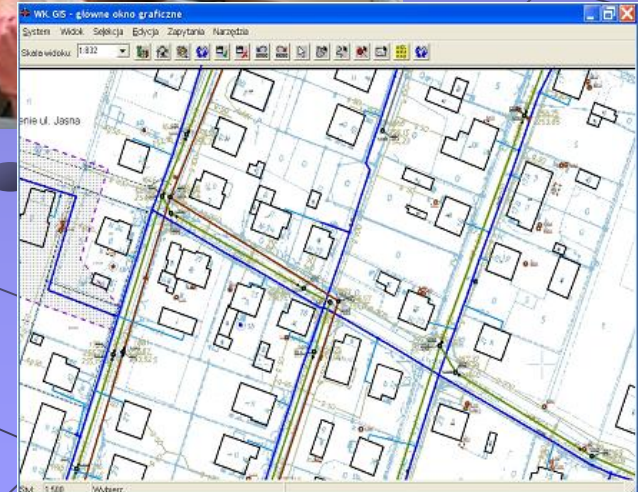
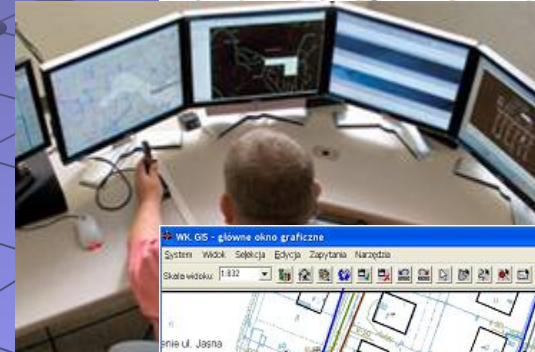
- An outage Management System (OMS) is a computer system and software used by system operators to reduce outage times and help allocate resources for system restoration.
  - Geographic Information System (GIS) based.
  - Could incorporate Automated meter reading (AMR) or metering infrastructure (AMI) systems.
  - Could use information from System Control and Data Acquisition Systems (SCADA)
  - Could incorporate data collected at call centers from Customer Information Systems (CIS) or Interactive Voice Response Systems (IVR).
  - Can use information from line crews during large outages.



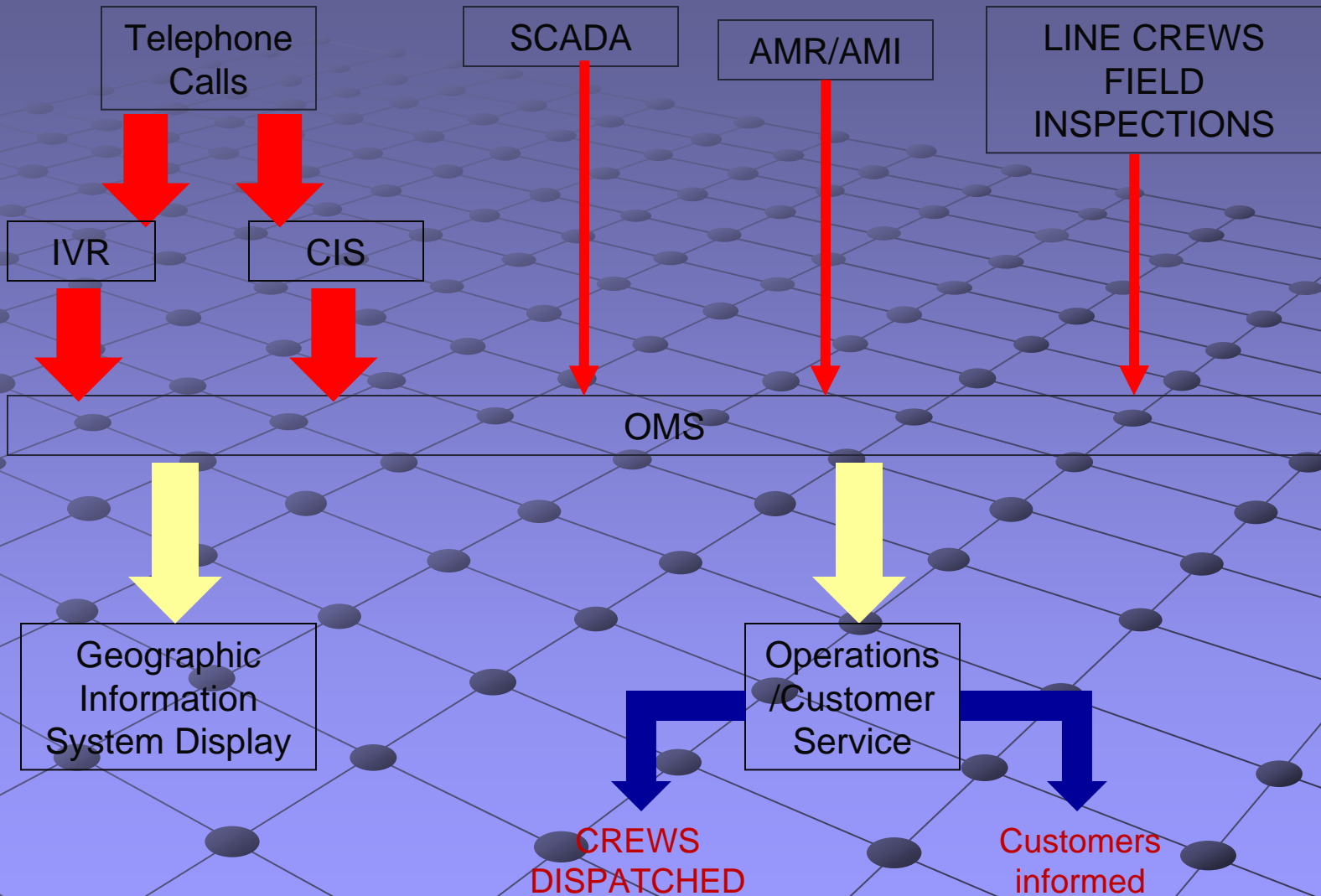
Outage ID	Status	Start Time	Location	Crew	Outage Code
101	A	2008/08/10 08:00:00	101	101	101
102	A	2008/08/10 08:00:00	102	102	102
103	A	2008/08/10 08:00:00	103	103	103
104	A	2008/08/10 08:00:00	104	104	104
105	A	2008/08/10 08:00:00	105	105	105
106	A	2008/08/10 08:00:00	106	106	106
107	A	2008/08/10 08:00:00	107	107	107
108	A	2008/08/10 08:00:00	108	108	108
109	A	2008/08/10 08:00:00	109	109	109
110	A	2008/08/10 08:00:00	110	110	110
111	A	2008/08/10 08:00:00	111	111	111
112	A	2008/08/10 08:00:00	112	112	112
113	A	2008/08/10 08:00:00	113	113	113
114	A	2008/08/10 08:00:00	114	114	114
115	A	2008/08/10 08:00:00	115	115	115
116	A	2008/08/10 08:00:00	116	116	116
117	A	2008/08/10 08:00:00	117	117	117
118	A	2008/08/10 08:00:00	118	118	118
119	A	2008/08/10 08:00:00	119	119	119
120	A	2008/08/10 08:00:00	120	120	120

# Trends

- Utilities are increasingly using Outage Management Systems to aid in handling system repair.
- Systems have grown over the years from an amalgamation of smaller systems designed for other uses.
  - Trouble Tickets
  - AMR Systems
  - Sometimes “home grown”
  - Were not designed to handle wide-scale outages.
- Newer integrated outage management systems better integrate a variety of data.
  - Contain algorithms to track outages and repair status.
  - Can better handle large outages



# How it Works



# How It Can Help

- Integrates coordinates and displays data from many sources.
- Includes computer algorithms to aid the decision making process.
  - Helps in assessing where troubles exist and how extensive the outage is.
  - Helps to identify which customers are affected.
  - Helps prioritize restoration efforts.
  - Helps in calculating restoration time.
  - Helps manage crews and other resources.
  - Keeps track of critical infrastructure such as 911 centers and fire departments so restoration can be prioritized.
- One step on the way to the “smart grid.”



# What is Needed for an Effective OMS System?

- Utilities may need to re-think how they respond to trouble calls and issue work tickets.
  - How are calls handled? By operations or customer service?
  - How are trouble calls routed to the correct person so action may be taken?
  - Training is needed for all employees involved in its use.
- Good communication within the utility.
  - There may be multiple customer service centers.
  - There may be multiple SCADA and AMI systems.
  - All the correct data must get to everyone who needs it.
- In a widespread outage the utility backbone must be available.
  - SCADA , AMI and other data is highly dependent on telephone, fiber optic, satellite, and radio systems.
  - These systems may not be controlled by or repairable by the electric utility.
  - Coordination with local telephone/communications companies is vital.

# Thanks

Keith Malmedal Ph.D. P.E, P.Eng.  
NEI Electric Power Engineering  
P.O. Box 1265  
Arvada, CO 80001  
303-431-7895  
[kmalmedal@neiengineering.com](mailto:kmalmedal@neiengineering.com)