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Getting Business Ready

White Paper

An Update on Utility Outage Communication Programs & Recent Developments in the Sector

Introduction

This White Paper (Version 2.0) is an update to the initial Outage Communications White Paper (referred to herein as OC White Paper 1.0) Kaihen released in January 2014 and is designed to further educate and inform utilities about the status of best practices and latest trends/developments in utility outage communications and outage management in North America. The OC White Paper 1.0 is available on the Kaihen website (http://kaihen.ca/benchmarking-study/) for reference.

Since the release of the OC White Paper 1.0, many utilities have focused on improving outage communication programs in the three key areas discussed below and detailed in the initial OC White Paper.

1. **OUTAGE COMMUNICATION SYSTEMS** – The core system during any power outage remains the Outage Management System (OMS). Most utilities surveyed in the Kaihen Benchmark Study over the past two years had some form of an OMS in place (i.e. manual paper based system, home grown system, vendor system). Over the past year, however, there have been a significant number of utilities which have implemented a new OMS, upgraded their legacy OMS, or are in the planning phases to do so. Utilities have also implemented new Customer Information Systems (CIS). The CIS continues to be an important system for outage communications since it retains and maintains all customer records, contact information, email addresses and cell phone numbers that will enable texting and emailing with customers. As a continued best practice, most utilities have adopted inbound and outbound Interactive Voice Response (IVR) solutions which communicate the cause of the outage, Estimated Restoration Time (ERT), crew status, and number of customers impacted. The implementation and integration of these new systems will drastically improve utility outage communications programs.

2. **CALL CENTERS** – Utilities are also moving towards 24-7 call center support to improve their customer communications. In order to do so, utilities have implemented outsourcing and mutual assistance solutions for call overflow and after-hours coverage during outage events. As well, most utilities in the Study have recognized the need to improve their telephony infrastructure for handling large call volumes during extreme weather events. Lastly, with the implementation of new outage systems, the Customer Service Representatives (CSR) are being trained to be more proficient with the new systems as they come online (namely the OMS, CIS, and IVR).

3. **CUSTOMER COMMUNICATION CHANNELS** – Utilities are gradually making changes in their outage communication programs in regards to proactive communications. Utility websites remain the most popular communication channel. Most utility websites are mobile friendly and enable customers to opt for outage alerts/notifications.

Utilities have also increased the use of Facebook and Twitter and are achieving a good return on investment especially for smaller scale outages. The more advanced utilities are implementing the latest social media channels during outages including YouTube,

Flickr, and Instagram. With these efforts, utilities are expecting to lower their average call volumes and improve overall customer communications and customer service.

In addition to the three areas discussed above, utilities today are developing in-house applications and tools to help facilitate power restoration quickly and safely. One utility has created a state of the art mobile application which provides field crews with detailed customer information from smart meters, weather information/alerts and critical outage information. Through this single application, field crews are able to restore power in an efficient and effective manner.

Since the release of the OC White Paper Version 1.0, there have also been significant developments in the industry which will further shape outage communications and the management of outages for utilities.

Future Changes in Outage Communications and Outage Management

The Department of Energy estimates that the annual cost of outages in the US was approximately
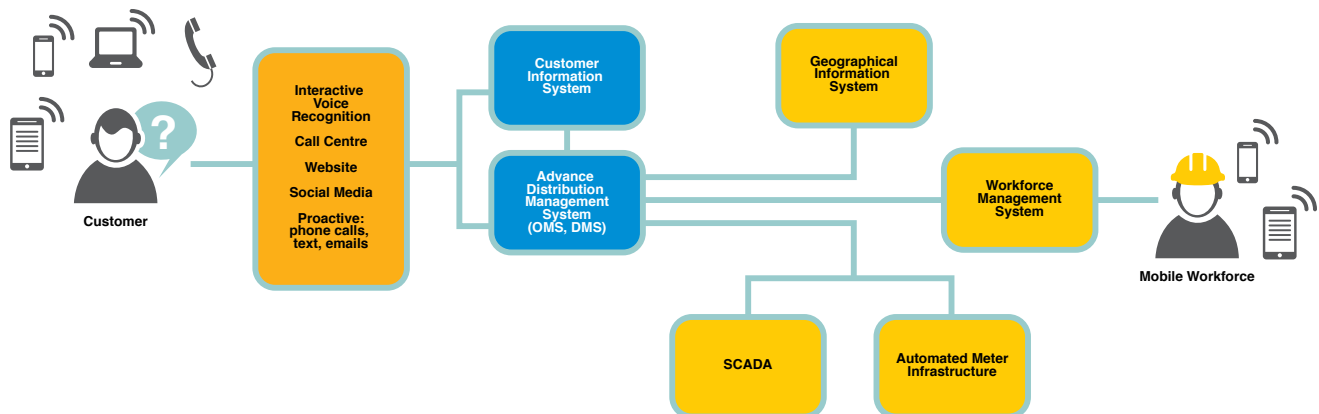
$55 Billion in 2012

The intelligent grid, regulatory requirements and a new standard for outage data are the driving forces for future change with respect to utility response to and recovery from outages.

Intelligent Grid

The Department of Energy estimates that the annual cost of outages in the US was approximately $55 billion in 2012. This cost is a key factor that is validating the implementation of the intelligent grid (e.g. installing distribution line monitors with Remote Terminal Units, remote monitoring and switching devices, Advanced Metering Infrastructure). In terms of outage management, utilities are experiencing positive results from their intelligent grid implementations including a reduction in the overall cost and impact to customers from outages; which are being measured using key performance indicators such as customer outage minutes avoided through automation and power restoration to customers without a phone call.

The Advance Distribution Management System (ADMS) is a key system that is being implemented to support the intelligent grid. The ADMS is an important part of the outage communications system architecture and integration as shown in the diagram below. The ADMS combines OMS and Distribution Management System (DMS) functions and integrates with all the key systems in the diagram below. The ADMS creates a single environment and user experience which is effective in streamlining decision making.

Outage Communications System Integration

An executive from a major utility in the US believes that the ADMS will ensure faster and more accurate information about types and location of outages through a more comprehensive view of the distribution system, improve decision making and enable better management and dispatching of crews during outages. ADMS implementations will ultimately benefit utilities by helping to minimize outage duration, increase system reliability, improve customer service and ensure better management of the grid.

Regulatory Requirements

The New York State Public Service Commission scorecard is based on a points system where

Utilities can earn up to a total of 1,000 points

In the US, utility performance before and during major outage events has been a major focus of regulators given recent storms such as Hurricane Irene, Tropical Storm Lee and Hurricane Sandy. Regulators believe that improving utility performance in specific areas like outage communications will reduce the impact to customers and increase overall safety.

The New York State Public Service Commission has developed a quantitative tool or scorecard to assess utility operational performance in three areas:

- Preparation for an outage event;
- Response during the event and recovery; and
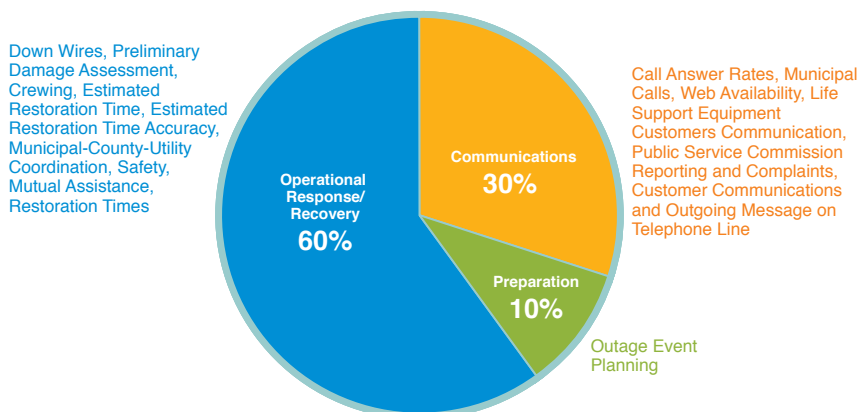- Two way communications to and from the customer during an outage.

The scorecard lays out in detail, the criteria that the Commission uses to evaluate utility performance during an outage. Utilities have, in turn, used the criteria to prepare internally for outage events and to ensure the successful achievement of regulatory requirements set by the Commission. Utilities have used the criteria to:

- assign responsibility and ownership for key outage management/ communication functions across departments (cross functional accountability);
- identity issues and gaps with respect to outage processes;
- test systems and procedures to ensure readiness;
- establish or confirm reporting channels; and
- identify and implement improvements.

The Commission believes that the scorecard will provide vital information on best practices, enable continuous improvement in regards to outages and ensure accountability where utilities fail to achieve the necessary requirements during the various phases of an outage event – preparation, response and recovery, post event/demobilization.

The scorecard is based on a points system where utilities can earn up to a total of 1,000 points based on achieving requirements in the three areas – Preparation, Operational Response/Recovery and Communications.

Scorecard Points Distribution

Down Wires, Preliminary Damage Assessment, Crewing, Estimated Restoration Time, Estimated Restoration Time Accuracy, Municipal-County-Utility Coordination, Safety, Mutual Assistance, Restoration Times

Operational Response/ Recovery
60%

Communications
30%

Preparation
10%

Outage Event Planning

Call Answer Rates, Municipal Calls, Web Availability, Life Support Equipment Customers Communication, Public Service Commission Reporting and Complaints, Customer Communications and Outgoing Message on Telephone Line

Other regulators such as the Maryland Public Utilities Commission are examining regulatory requirements for outages. Last summer, the Maryland Public Utilities Commission proposed a more stringent approach than the New York Public Service Commission's Scorecard where staff recommendations regarding utility communications (i.e. power restoration estimates provided to customers) were not just limited to major outages but under normal operating conditions.

Outage Data Initiative

To improve disaster response and recovery efforts during storms and major outage events, utilities, electricity market participants (including vendors) are collaborating on the development of an open standard for publishing power and restoration information. This new industry led initiative will provide third parties with vital information about power outages.

The new standard will allow utilities to share/publish information as "structured data in an easy to use and common format". Third parties interested in this data will include not only first responders but also public health officials, utility operations, mutual assistance participants and the public. The standard will be based on the work already completed for the Green Button initiative but instead of the focus being on consumption data; it will be on outage information.

Some of the Parties involved in developing the standard include:

- National Grid
- Google
- Duke Energy
- ComEd, An Exelon Company
- Florida Power & Light
- Department of Energy
- The White House Office of Science & Technology – US Government
- San Diego Gas & Electric
- Pacific Gas & Electric
- Consumers Energy

Details regarding the standard are expected to be released in the first quarter of 2015.

Kaihen Outage Communications Maturity Model

In order to provide further value to the utilities participating in the Benchmark Study, Kaihen has created an Outage Communications Maturity Model (OCMM). The OCMM enables a utility to gauge its outage communications program's level of maturity in seven functional areas. The seven functional areas include: IVR, OMS, Call Center, Social Media, Website, Customer Feedback, and Communication Channels. Once the evaluation is completed for all of the functional areas, the utility is placed into one of the following five different categories:

- Low Capability (Laggard);
- Low-Average Capability (Late Maturity);
- Average Capability (Early Maturity);
- Average-High Capability (Early Adopters).
- High Capability (Initiators).

OC Maturity Model Definitions

Laggards	Late Maturity	Early Maturity	Early Adopters	Initiators
Low Capability	**Low-Average Capability**	**Average Capability**	**Average-High Capability**	**High Capability**
• No IVR • No OMS • No use of AMI for outages • No call center • No social media • Website: No outage information • No customer feedback mechanism • OC channels: only call center	• Inbound IVR • Basic OMS, not integrated with any system • Limited use of AMI for outages • Call center, not 24x7 • Twitter/Facebook • Website with basic outage information • Annual/bi-annual customer survey • OC channels: call center & Social media/website	• Inbound & Outbound IVR with basic functionality • OMS integrated with AMI & some systems • 24x7 Call center with back-up • Twitter & Facebook • Website with outage info. & reporting • JD Power/3rd party/monthly + bi-annual customer survey • OC channels: call center, IVR, social media/website	• Inbound & Outbound IVR with Inbound fully functional • Fully-functional OMS, not integrated with WFMS • 24x7 Call Center, Back-up, integration with all outage information • Twitter & Facebook fully used for communication • Website with outage info. & reporting, mobile-friendly • Post-event, quarterly & Annual/bi-annual customer survey • OC channels: call center, IVR, social media, website	• Fully functional Inbound & Outbound IVR • Best-in-class OMS or ADMS, integrated with all other systems • 24x7 Call Center, outage-dedicated, Back-up, integration with all outage information • Four social media channels fully used with FTE • Website with outage info., reporting, outage maps, storm landing page, mobile-friendly • Post-event, quarterly & annual/bi-annual customer survey linked to CSR KPIs • OC channels: call center, IVR, social media, website, mobile app & text

The evaluation is conducted based on the data collected from participation in the Benchmark Study. The OCMM enables the utility to visually identify gaps and issues in its existing outage communications program and determine the necessary skills/capabilities/steps required to achieve the desired maturity level.

In Closing

With the increase in frequency and duration of storms as well as the resulting impact on customers; utility planning in the short and long-term is focused on preparation, response/ recovery and customer communications during outages. Some regulators, as indicated in this document, are now imposing strict requirements to ensure utility readiness for all phases of an outage. As utilities implement changes and test readiness during actual or mock outage events, there are many lessons learned and best practices that can be shared amongst utilities. Sharing of this information with peers can ultimately lead to reducing outage impacts, improving safety, reliability and outage communications to customers.

In 2015, Kaihen will continue to conduct the Benchmark Study across North America and gather information on the latest developments in the industry. Kaihen will share outage communication insights at Industry events and provide evaluation results and best practice information. Kaihen believes that it is important that best practices be shared amongst utilities and is very interested in additional utility participation in the Benchmark. Participation in the benchmark has benefitted many utilities and is free of charge. All individual utility results from the benchmark are kept confidential and only aggregated results will be published. To participate in the benchmark, please contact:

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Please visit us at www.kaihen.ca/benchmarking-study/

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Sources: Kaihen Outage Communication White Paper,
Whitehouse Office of Science and Technology (www.whitehouse.gov/administration/eop/ostp),
Schneider Electric "Enhancing Utility Outage Management System Performance"
(www.schneider-electric.com/solutions/ww/en/med/616623636/application/pdf/2358_files.pdf),
State of New York Public Service Commission

About Kaihen

Kaihen helps electric, gas and water utilities prepare for the kinds of fundamental business changes that improve operations and customer service.

Our name is a word meaning change, or innovation, or transformation. It embodies everything we do for our clients.

Our core competency is business readiness—ensuring that our clients' people, processes and systems are well-prepared to adopt the change we help to implement. And we do so by managing projects, designing and improving business processes, training users, solution testing, and implementing powerful change management initiatives.

Kaihen's offerings revolve around three key areas of our clients' businesses: Smart Grid Strategy & Implementation; Customer Operations & Systems; and Acquisition & Consolidation.

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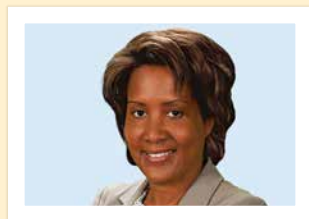
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