



# AGSI

Empower the Enterprise

## GIS Evolution

GeoBuiz

August 11, 2015

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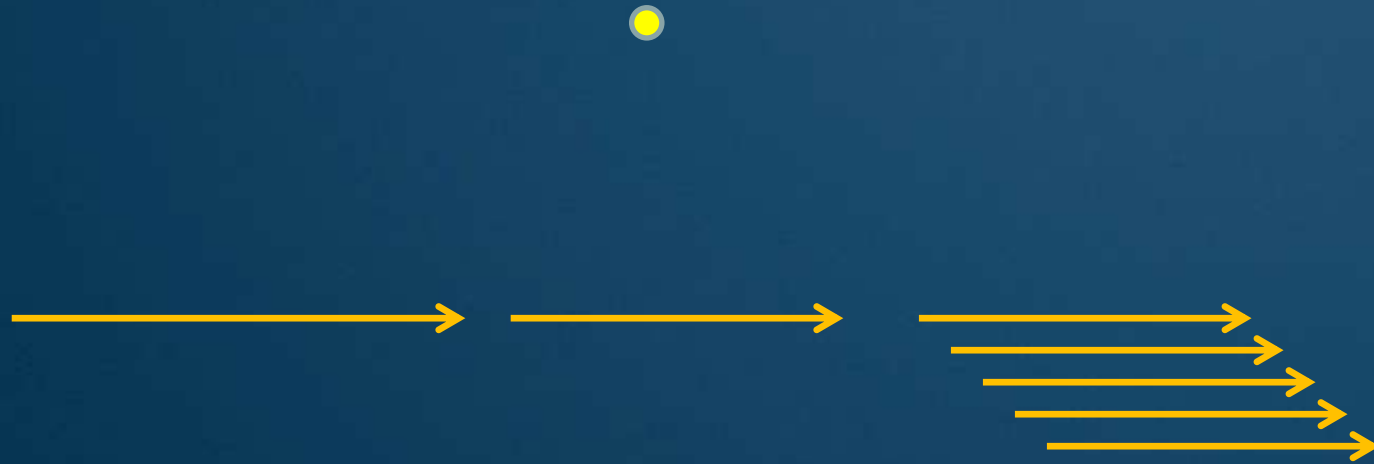


# Where is your GIS?

## ➤ The Evolution Challenge

- ✓ How did we get here?
- ✓ Where are you going?
- ✓ What do you need to do to get there?

# The Challenge



# What Happened

Duration Curve EnergyChart Peak Demand Summary Throughput

Transformer Number: OT96787 Report Period: 05/07/2010 to 05/07/2010 in 15 min. Intervals

Formula

Transformer Rating:	75.0 KVA	
Peak Demand:	123.73 KVA	Peak Interval Reading (kW/ 15min) * 4 / 0.9 (kVA)
Peak Demand:	111.36 KWh	Max. Instantaneous Demand (since meter register was reset)
Overload:	63 %	<b>Overload: 63% of the time</b>
Load Factor Rating:	0.73	Ratio of Avg. Demand to Max. Demand
Use Factor Rating:	1.65	Ratio of Peak Demand (kVA) to Installed Capacity
Outage Count:	3	Derived from AMRDEF dailyoutage summary values
Outage Duration:	60.0 Minutes	Derived from AMRDEF dailyoutage summary values
Loss of Life:	0.34 %	<b>Loss of Life: 0.34%</b>
Coincidence Factor:	1.0	Max. s

Throughput: 1947.33 KWh

Create PD Export Result Export RawDa Prev Pag

Transformer/s: 1, number of transformer per report grc

Prev Grou: 1 of 1 Next Grou Sing

Duration Curve EnergyChart Peak Demand Summary Throughput

Transformer Number: OT96787 Report Period: 05/07/2010 to 11/07/2010 in 2 hour Intervals

Formula

Transformer Rating:	75.0 KVA	
Peak Demand:	124.67 KVA	Peak Interval Reading (kW/ 15min) * 4 / 0.9 (kVA)
Peak Demand:	112.2 KWh	Max. Instantaneous Demand (since meter register was reset)
Overload:	55 %	<b>Overload: 55% of the time</b>
Load Factor Rating:	0.64	
Use Factor Rating:	1.66	Ratio of Peak Demand (kVA) to Installed Capacity
Outage Count:	3	Derived from AMRDEF dailyoutage summary values
Outage Duration:	60.0 Minutes	Derived from AMRDEF dailyoutage summary values
Loss of Life:	1.88 %	<b>Loss of Life: 1.88%</b>
Coincidence Factor:	1.0	demands of each device (in kVA)

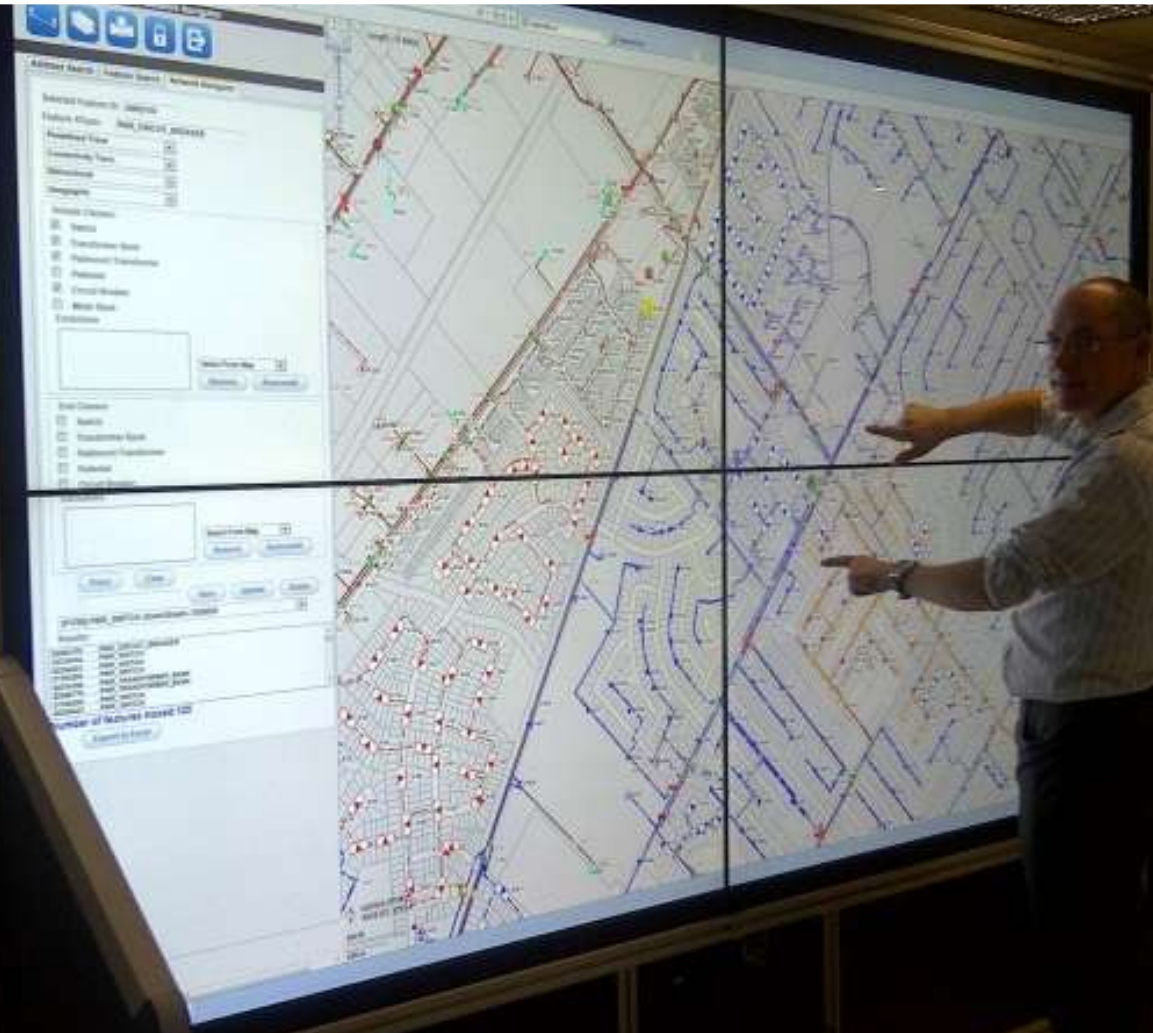
Throughput: 12014.09 KWh

Create PD Export Result Export RawDa Prev Pag 1 of 1 Next Page Go Page 1 Report Generated 100%, 1 of 1

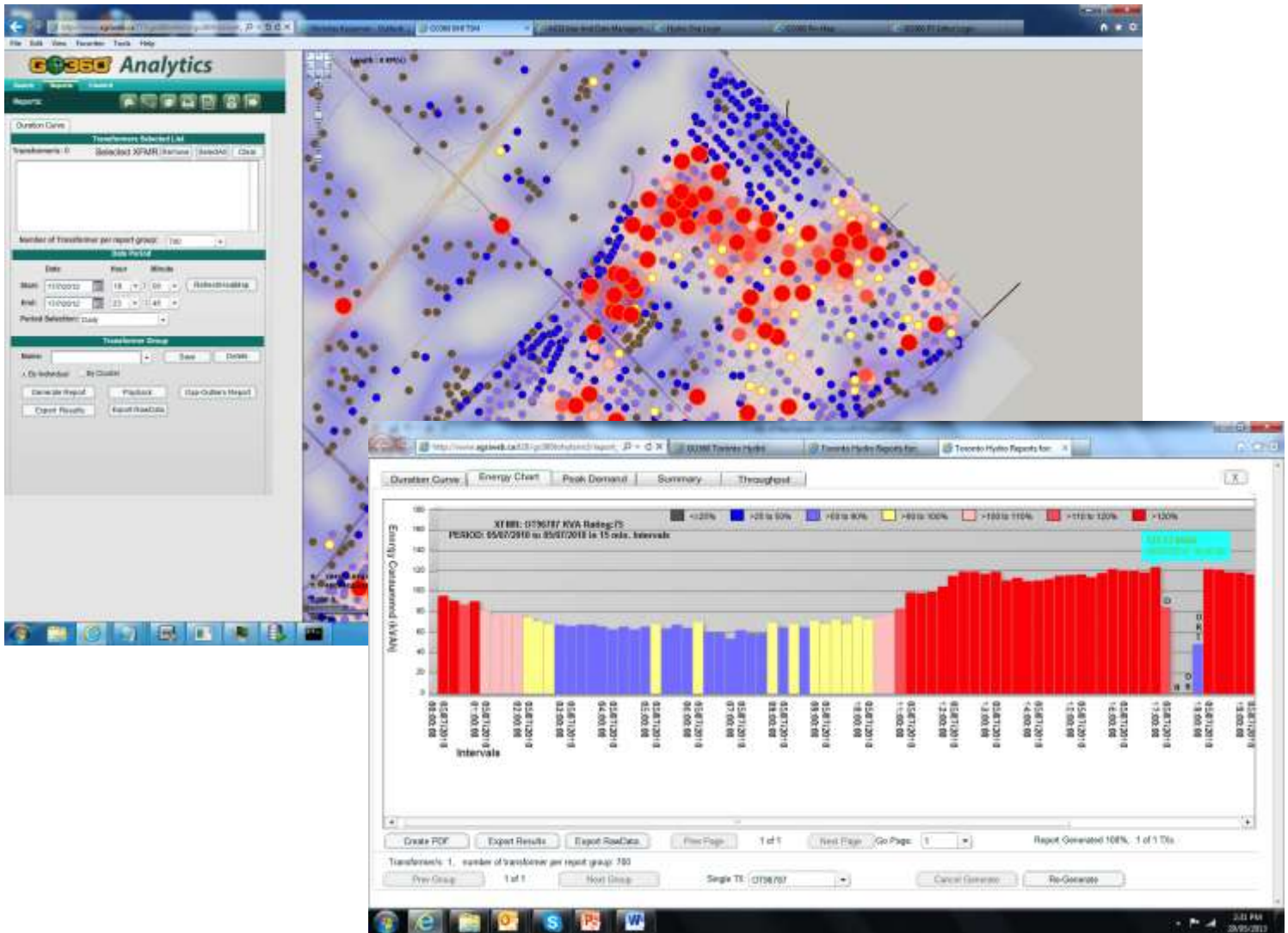
Transformer/s: 1, number of transformer per report grc

Prev Grou: 1 of 1 Next Grou Single T: OT96787 Cancel Genera Re-Genera

# What Is Happening



# What Will Happen



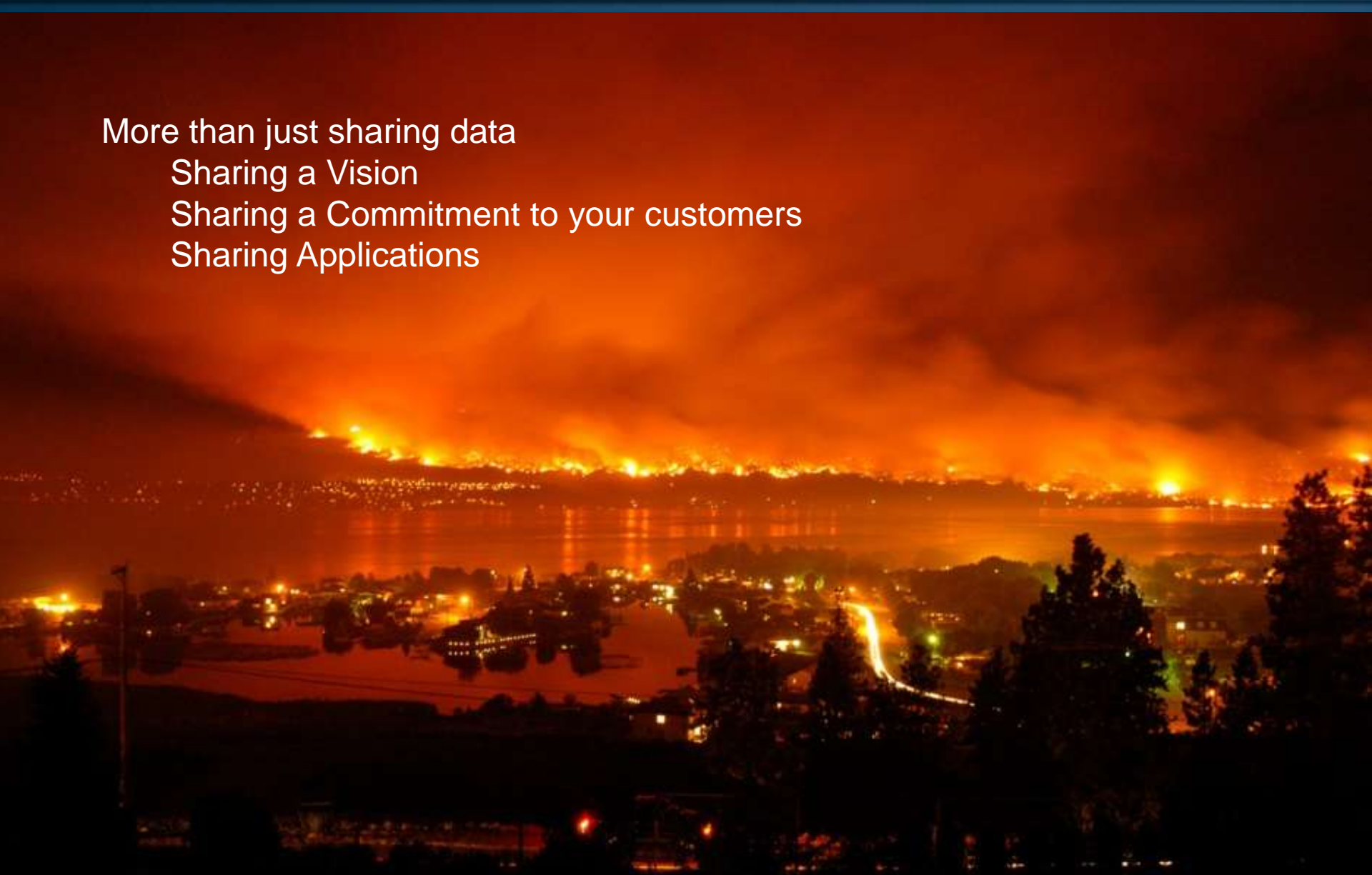
# Collaboration

More than just sharing data

Sharing a Vision

Sharing a Commitment to your customers

Sharing Applications



# Gartner's view

- **Computing Everywhere**
- **“Advanced, Pervasive and Invisible Analytics”**
  - ✓ "reach the right people based on the real places they visit every day."
    - Xad.com
- **Context-Rich Systems**



# Built in the Image of its Creator

- Most Utilities' GIS do exactly what we've designed them to do
  - ✓ Engineering / Design Centric
  - ✓ Who edits your GIS data?
  - ✓ Who cares about your GIS data?

# So What?

- Update Cycles are measured in weeks if not months.
- Workflows move information from domain experts through to GIS team.
  - ✓ Opportunity for delay
  - ✓ Opportunity for error
  - ✓ Does not maximise parties at either end of the equation.

# Where we're going

- The Geospatial Landscape has changed
  - ✓ Technology
  - ✓ Skills
  - ✓ Culture

# Two Kinds of Big Data

- Both are characterised by density.
- Lidar for example, is geographically dense.
  - ✓ Data points per meter often exceed data elements per kilometer of traditional GIS
- Sensor networks such as Smart Grid is temporally dense.
  - ✓ Many readings over time, new data in days, hours, seconds, milliseconds
  - ✓ Traditional GIS data elements update frequency measured in months for the more 'dynamic' parts of the network.

reminder of the scale of the challenge..



# Two Kinds of Fast Data

- Both are characterised by speed.
- Sensor data
  - ✓ Sensor data waits for no one
- Closest to source updating
  - ✓ No time to wait for a traditional workflow
  - ✓ No appetite for cost of traditional workflow
  - ✓ Engagement demands immediacy

# Outage Summary and Incident Grouping Window (Life and Limb Priorities)



Open/New Incident

Open/New Incident

Non-Dispatched Incidents Results : 13

Incident ID	Type	Device Name	Feeder	Street Num	Street Name	Unit	Start Time	Num of Customers	Status	Crew	Truck
1002665									OPEN		
1002663	Wires Exposed		MART_F7	367	TORRANCE ST		2015-04-01 13:33:24	1	OPEN		
1002662	Wires Exposed		MART_F7	367	TORRANCE ST		2015-04-01 13:06:38	1	OPEN		
1002660	No Power		TYAN_F2	2403	EAGLESFIELD DR		2015-04-01 09:41:22		OPEN		
1002648	No Power			118	118 BRETT DR		2015-03-31 12:38:48		OPEN		
1002641	No Power			118	118 BRETT DR		2015-03-31 12:38:48		OPEN		

Report Log
New Update Delete

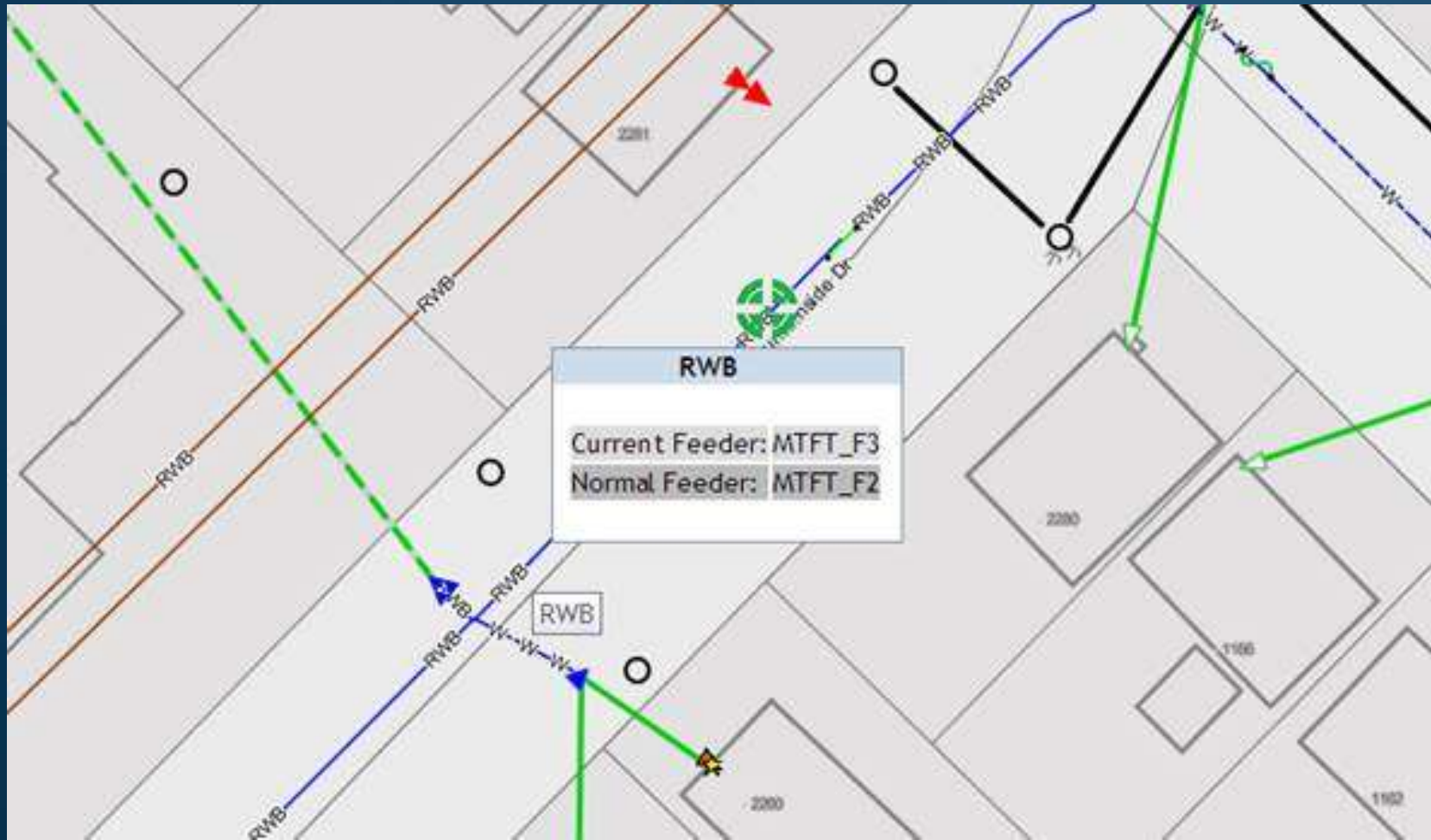
CCR Details	Life or Limb	Date+Time	Reason
	No	2015-03-05 16:18:04	No Power
TEST Comment	Yes	2015-03-05 16:15:43	No Power

Search Incidents Collapse Search Completed. Results : 17

Incident ID	Type	Device Name	Feeder	Street Num	Street Name	Unit	Start Time	Number of Customers	Status
1002665									OPEN
1002664	No Power	T1 in PT C343	MARL_F3	1432	GHEAT AVE		2015-04-01 09:22	15	OPEN
1002663	Wires Exposed		MART_F7	367	TORRANCE ST		2015-04-01 13:33	1	OPEN
1002662	Wires Exposed		MART_F7	367	TORRANCE ST		2015-04-01 13:26	1	OPEN
1002661	No Power		OSLR_F1	2143	PAISLEY AVE		2015-04-01 10:38		OPEN
1002660	No Power		TYAN_F2	2403	EAGLESFIELD DR		2015-04-01 09:42		OPEN
1002647	No Power		SFRU_F3	118	BRETT DR		2015-03-31 12:38		OPEN
1002646	No Power			118	118 BRETT DR		2015-03-31 12:38		OPEN
1002643	No Power			128	128 CRESTWOOD CR		2015-03-31 15:02		OPEN
1002641	No Power			118	118 BRETT DR		2015-03-31 12:38		OPEN
1002621	Pole Loading		MART_F7	361	TORRANCE ST		2015-03-09 14:19	1	OPEN

# Display driven by current status vs. set cartographic standards

- LO
- CC
- OM
- MO
- AA
- ED
- SM







### S95

Type	3ph_OH_Solid_4160V
Feeder	SPRU_F1
Phase	RWB
Voltage	4160

Date: 2015-04-07 08:55:45

Comments: Lorem ipsum

+ All Phases

+ Calculate Customers

- Tags

PC10A	PC10C	PC3	PC15	PC4

Hold-off Operation	Caution	Series Caution	Terminal Point

OTO/PC2 #

+ More Details

### S95 ◀

Type	3ph_OH_Solid_4160V
Feeder	SPRU_F1
Phase	RWB
Voltage	4160

Date: 2015-04-07 08:55:45

Comments: Lorem ipsum

+ All Phases

+ Calculate Customers

+ Tags

+ More Details

Type	3ph_OH_Solid_4160V
Feeder	SPRU_F1
Phase	RWB
Voltage	4160

Normally Open

### G40

Type	3ph_OH_Solid_4160V
Feeder	SPRU_F1
Phase	RWB
Voltage	4160

▶ To F1388 
  
 ▶ To Tx G50 
  
 Transformer G40

Date: 2015-04-07 08:55:45

Comments: Lorem ipsum

- Calculate Customers

Device	W
To F1388	20
To Tx G50	15
Transformer G40	10

+ More Details

LO

CC

OM

MO

AA

ED

SM

**Burlingtonhydro**  
energizing our community™

## Outage Maps

Total Customers without Power: 2922

Enter Street address for a Real-time View of the Power Status

Enter Street Address

e.g. 426 Brant Street

- Unplanned Outages** as from adverse weather
- Planned Outages** for Upgrades or Repairs

[Return to Full City View](#)

Type	No Power
Customers Affected	2296
Estimated Restoration	2014-06-25 15:14
Last Update	2014-06-25 02:50:00



# Mobile



Utilities. Now.



# Comprehensive Integration of Social Media



**G360 LiveOps**

Geographic Schematic 13 Schematic 27  
Wall Map

G360 Pin Map Geographic

Address Search Feature Search Incident Pin Operations Switching

**Incident Manager** Reports

Open Update Close

Incident ID: 1000104  
Incident Trigger: SCADA LOCKOUT EVENT  
Incident Type: Tree Contacta  
Incident Status: Cause Confirmed  
Root Cause: TREE FELL ON OVERHEAD LINE  
Fault Device: 22364727 PWR\_PRIMARY Select Z  
Protective Device: 25039774 PWR\_CIRCUIT\_E Select Z  
Device Name: RESV\_F3\_BRE Feeder: RESV\_F3  
Event Status: Open

Zoom to Incident

Insert Linked Record successfully.

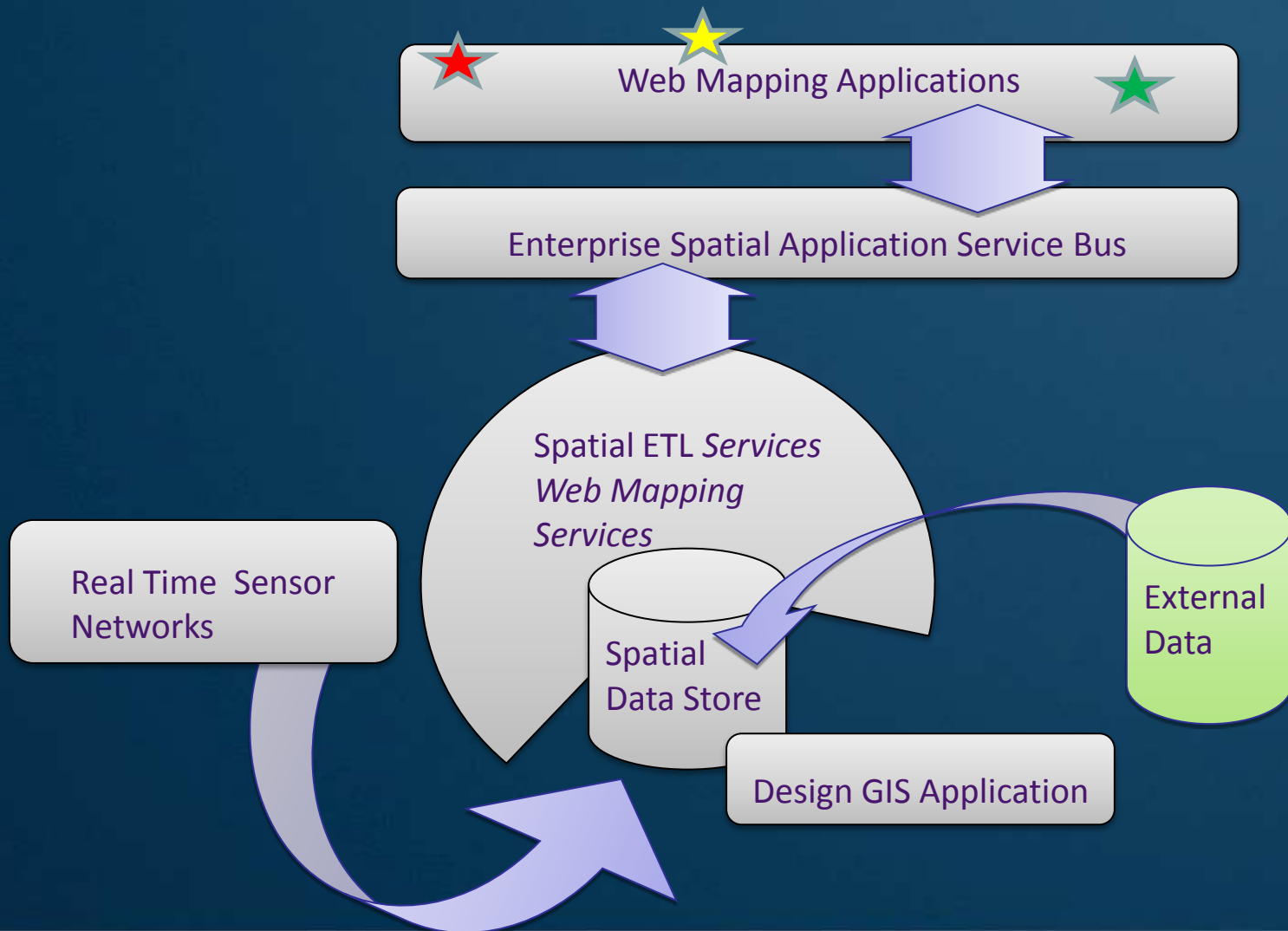
Date+Time	Source	Event
2013-07-17 16:13:54	Twitter CustID 6:	OUTAGE
2013-07-17 16:13:13	IVR CustID 7649:	OUTAGE
2013-07-17 16:13:54	Twitter CustID 6:	OUTAGE
2013-07-17 16:13:13	IVR CustID 7649:	OUTAGE

X: 594876.12335  
Y: 4802840.98281

200 ft  
50 m

AGSI

# Architecture Overview



# How We'll Get There

## ➤ Maturity Model for 'BIG Data Ready' GIS?

### ✓ Data Base

- Designed for Big Data
- Big Data Structures
- "Don't tune for performance – Design for performance"

### ✓ Data

- Leveraging standard data models: CIM, Pods
- Application agnostic

### ✓ Architecture

- Business Centric Data Store
- Enterprise wide availability of business rules
- nTier Architectures
- Continuous Improvement

### ✓ Organisational

- Inclusive – Issues Trust Dividend – across departments, across companies
- Engaged – Everyone involved
- Integrated – Spatial isn't Special?

Thank you!  
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