Leak Management

How Companies can Track Service Interruptions, Inspections, and Repairs in Maximo
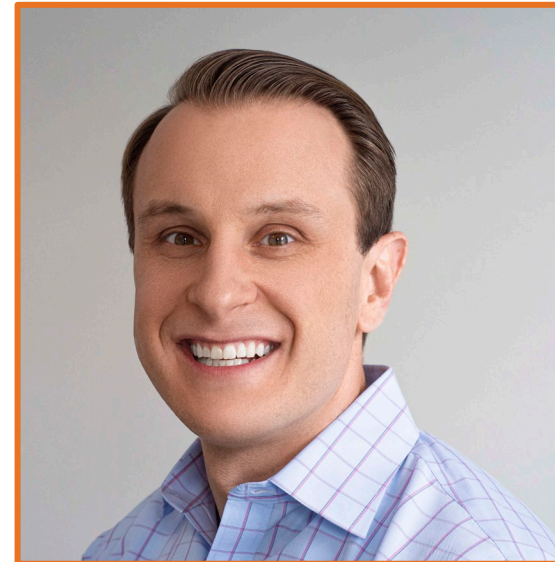
spire

Presenters

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- Spire
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- Maximo SME
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Agenda

- Company Profile
- Legacy System
- Maximo Implementation
- Life Cycle of a Leak
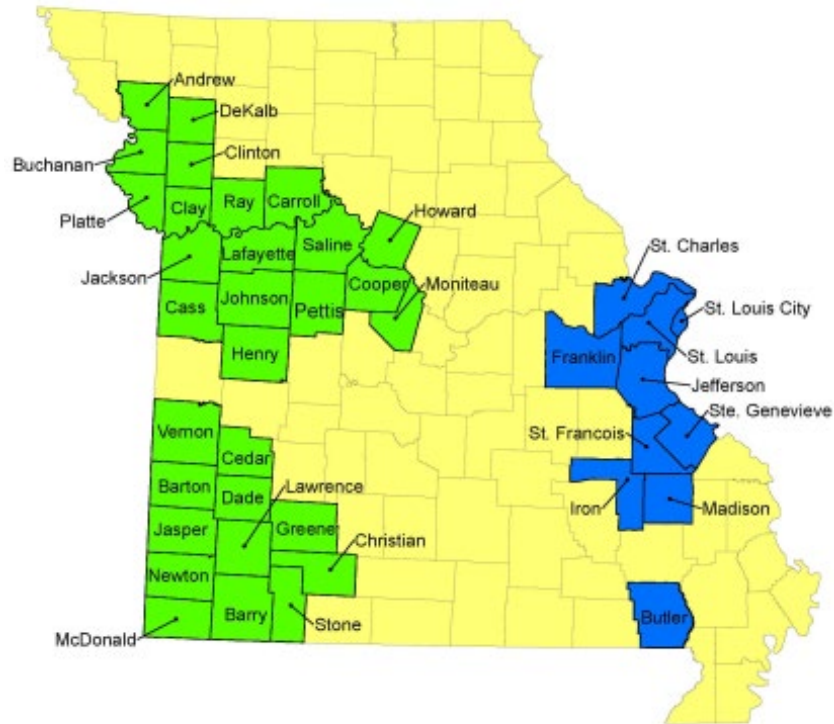- Architecture
- Lessons Learned

Spire Company Profile

- 3100 employees
- 1.7 million customers
- Founded in 1857 as the Laclede Gas Light Company
- Spire Natural Gas fueling solutions.
- Legacy companies:
  - Laclede Gas
  - Missouri Gas Energy
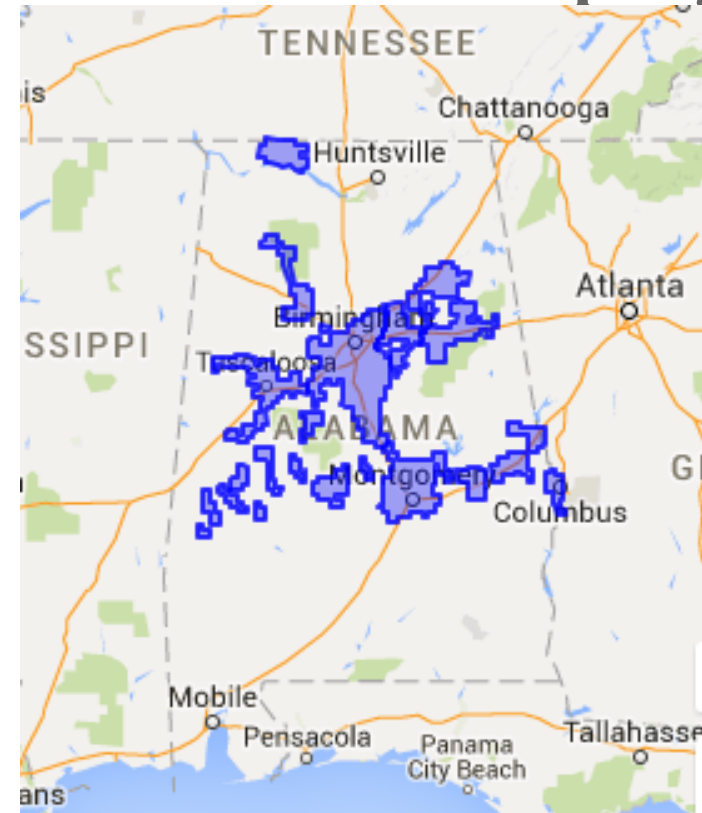 - Alagasco
  - Wilmut
  - Mobile Gas

Spire Company Profile

**Largest Missouri Natural Gas Distribution Company**

Largest Alabama Natural Gas Distribution Company

Initial Need

As technology rapidly advanced in the early 2000's, so did the number of independent, redundant, and conflicting databases and applications. This quickly led to "data chaos", with poor organization, ownership, and stewardship of our data. The newBLUE project was setup to update the companies technology and move isolated systems into an enterprise wide solution.
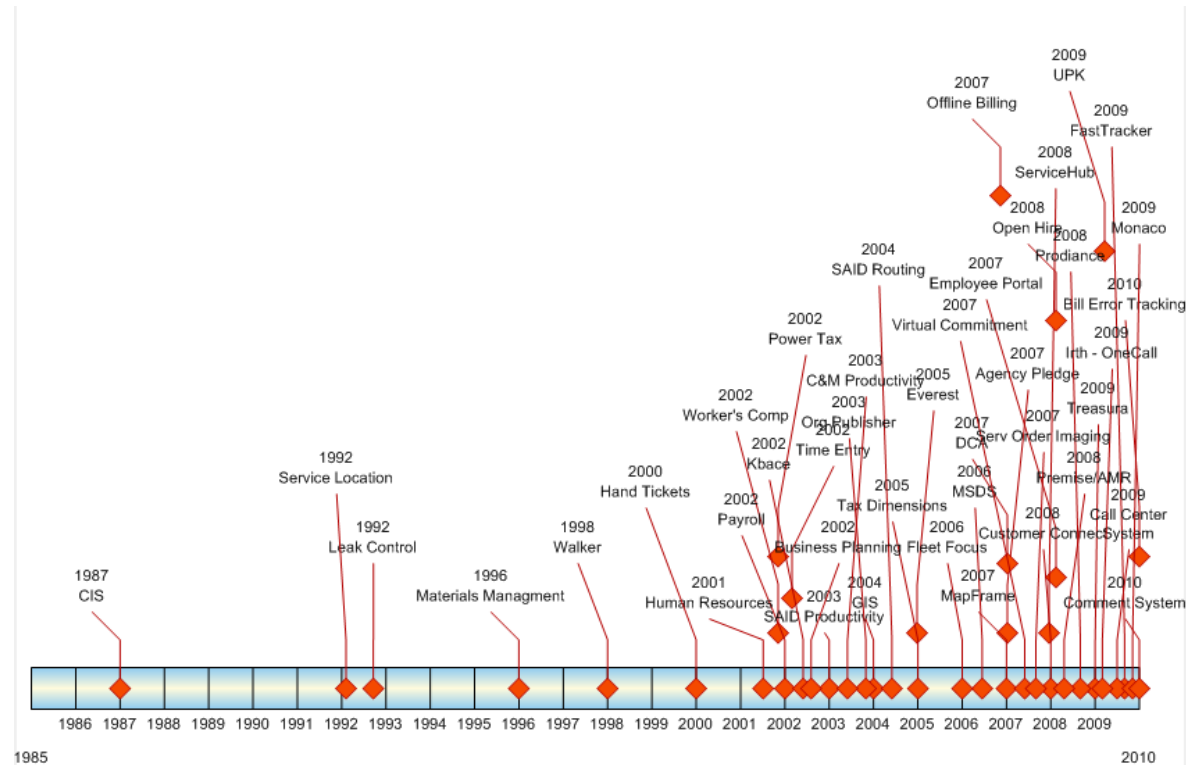
Legacy System - LMS

The legacy LMS system was an oracle database with screen functionality built in .Net.

- Stored master leak record (current data on leak)
- Printed paper inspection tickets based on schedule
- Data entry of completed paper inspection records
- Tracked and reported inspection and repair due dates
- Provided tabular record of leaks and pending work

Legacy System - LMS

The legacy LMS system did not fill many functional needs

– Entirely paper based system – no visibility into pending schedule or WIP

– No tie to leak repairs that were stored in separate system

– Time reporting in separate system with no reference to work performed

– No map relationship – location entirely tabular address

– Unable to identify leaks in areas of planned work

Top Priorities for a New System

Requirements:

- Leak System must store core information collected on leaks reported on distribution system.
- Every inspection of a leak must be maintained in it's entirety as a transaction in a leak history data store.
- Leaks must be inspected at defined intervals based on classification.
- Ability to check for duplicate leak record based on address/location.
- Migrate historic information for reporting.

Lifecycle of a Leak

Survey

Discover

Re-Inspect

Investigate

Repair

Compliance

Discover

At discovery leak is pinned on map, prior or existing open leaks are searched for relationship to reported site.

Results documented, initial record sent to supervisor for review.

Leak Tracking

Leak Tracking maintains the hierarchy of a Leak. As the parent it maintains the data from the most recent completed inspection and displays the associated inspections, repairs, duplicate leaks, damages, and work orders.

Related Leaks ▶ Filter › 🔍 ✎ ⬆ ⬇ ⬅ 1 – 3 of 3 ➡

	Related Leak ⬍		Record Type	Work Type	Leak Class	Status	Relationship	Reported/Created Date	Inspection Date
▷	5323591	»	LEAKINSPEC	LINSP	1	COMP	FOLLOWUP	7/21/21 1:39 PM	7/21/21 1:34 PM
▷	5323592	»	LEAKINSPEC	LRINS	2	COMP	FOLLOWUP	7/21/21 1:40 PM	7/21/21 3:48 PM
▷	5323703	»	LEAKINSPEC	LRINS	N	COMP	FOLLOWUP	7/22/21 6:00 AM	7/22/21 12:23 PM

Select Ticket   New Row

Related Work Orders ▶ Filter › 🔍 ✎ ⬆ ⬇ ⬅ 1 – 2 of 2 ➡

	Leak Repair #		Work Type	Leak Location	Status	Relationship	
▷	22540274	»	LINVS		COMP	FOLLOWUP	🗑
▷	22550961	»	LREPR	Service-to-Service	COMP	FOLLOWUP	🗑

Select Work Orders   New Row

Re-Inspect

Classification set and Leak approved. Maximo creates historical record of readings, generates re-inspect with due date, and investigation record with completion date.

Leak (Re)inspection

- Users perform an inspection and submits to the Leak Foreman for review.
- Upon completion, Parent Leak updates to reflect latest readings
- New reinspection created with an inherited due date based on new classification

Investigate

Division Foremen sets target date and assigns crew. Dispatched repair crew reviews initial report and confirms leak has not migrated to confined space. Documents findings create repair record.

Repair

Repair Crew captures information on root cause of hazardous leaks, inputs replacement of main or service asset when necessary.

Crew performs repair, documents as-found and as left, updates asset details.

Leak Repair

- Leak Investigation checks for migration of leak, and confirms initial readings. At completion creates a Leak Repair.

- Leak Repair documents the work performed, changes to the asset, compliance related information, and identifies records for a main replacement program.

Compliance

Repair data used to compile reporting required by State and Federal reporting requirements.

Repair work order is pinned to asset in Maximo Spatial. Establishes basis for maintenance and capital planning.

Survey

Leak investigations are dispatched based on odors reports from the public and / or company employees

Leak surveys over distribution piping are conducted at routine intervals (1 or 3 years) based on the type and vintage of the mains and services

Record Flow

Leak Management

Leak

Identified → Parent Record

Generate Inspection

Generate Repair

Calculate Due Dates

Calculate Due Dates

Update Leak Hieracrhy

Document Inspection

Document Repair
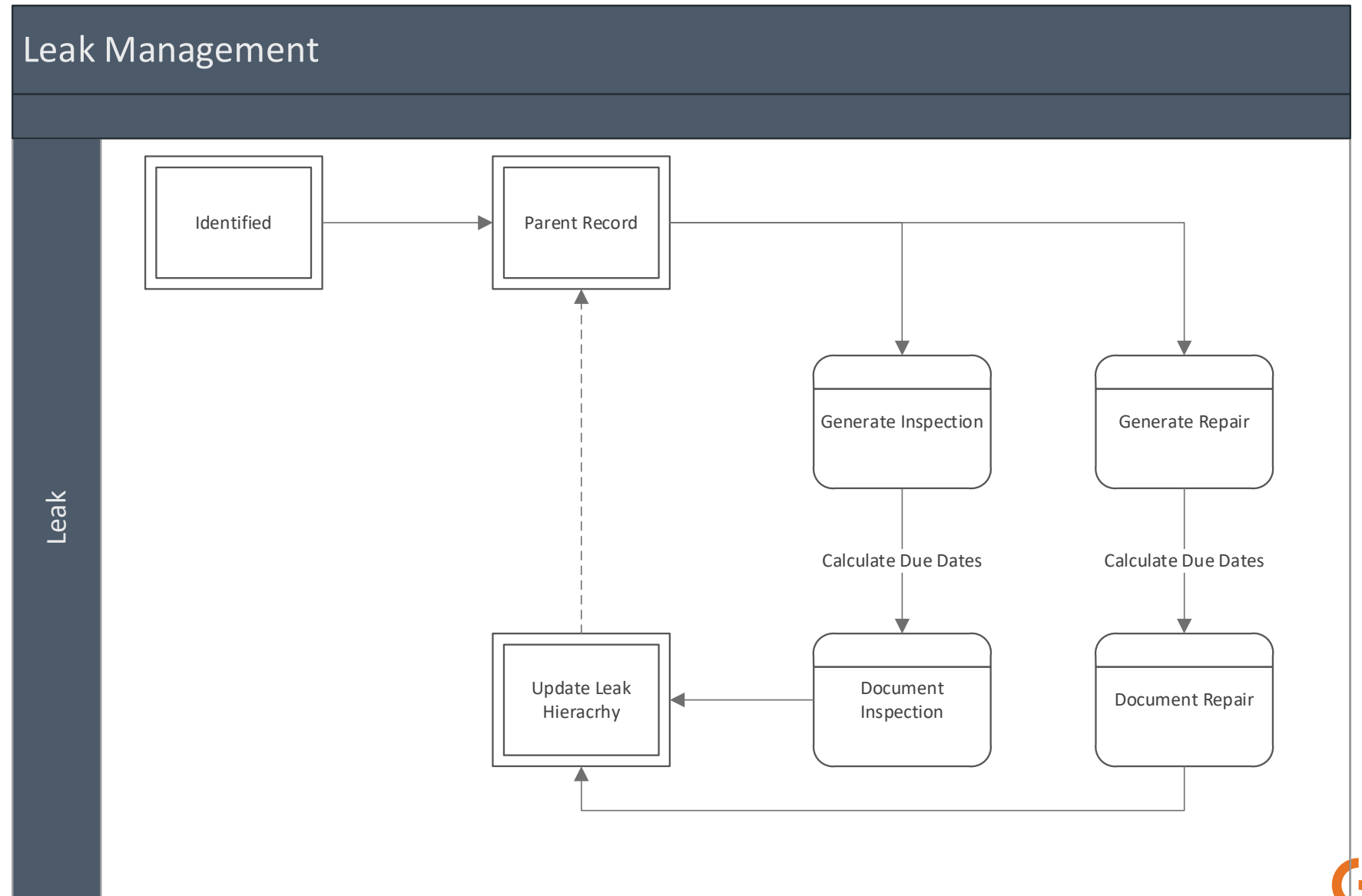
Maximo Configurations

- 3 Custom applications
- 3 Workflow controllers
- 13 Escalations
- 21 Automation Scripts
- 60+ conditional expression
- 88 Global Data restrictions
- Numerous Domain Validations

Roll Out

- All 3 custom applications were rolled out during Phase 2 of the Maximo project. This involved adding in and supporting industry solutions, heavy configurations, and a large amount of integrations.

- SME's were identified early on and played an integral part during design, testing, training, and post go-live support.

- Training included classroom sessions prior to release, surveys with questions gauging users understand of the applications, and follow-up training in the field after go-live.

History of Solution

- Initially Deploy in 2013
- Continuous development/enhancements
- New acquisition added 2015
- Integration to Click Scheduler/Mobile 2021

Lessons Learned

- Complex validations required complex logic. Documentation is key.
- Empowering users to help with improvements saves time. Through automation we were able to reduce extraneous review, and identify leaks needing further review.
- Leveraging BIRT reports to report on escalation failures saved analysis.
- KISS

How does this work for other industries?

- Track
  - Identify service outage or interruption.
- Report
  - Generate inspections.
  - Record details around report, location, impact, time/date.
  - Compile data in reports per governing body requirements
- Resolve
  - Record details of repair.

Questions

Thank You

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