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The Netherlands

Geographic Information Technology(GIT), The Primary Success Factor in Restructuring Gas Emergency Maintenance Operations

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TOKYO GAS

TOPICS

1. Introduction
2. Gas Leakage Emergency Work
3. Organization & Operation Restructuring
4. Purpose
5. System Composition
6. Functions
7. Effects
8. Conclusions

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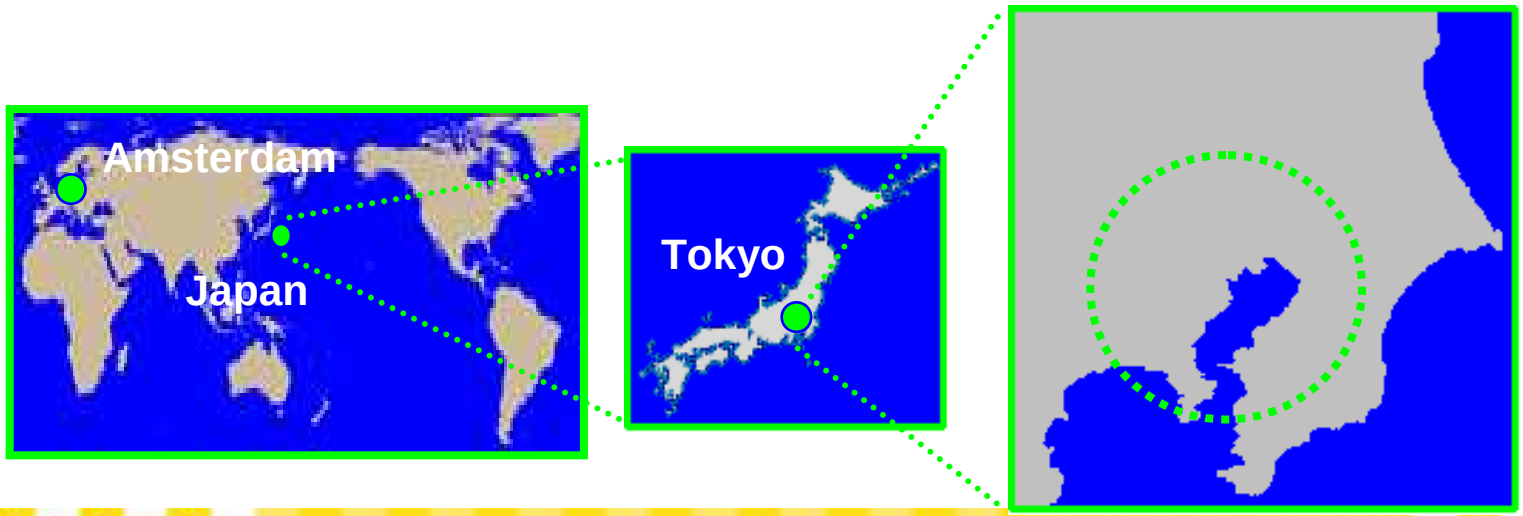
- Our gas business: Production, distribution, and sale of gas
- Customers: 9.8 million
- Gas pipeline network: 51,000 km
- Distribution Area: 3,200km^2 1/13 Netherlands (Mar 2006)



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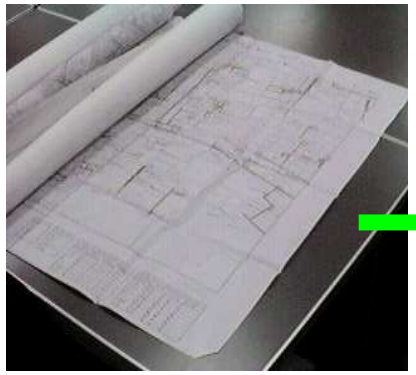
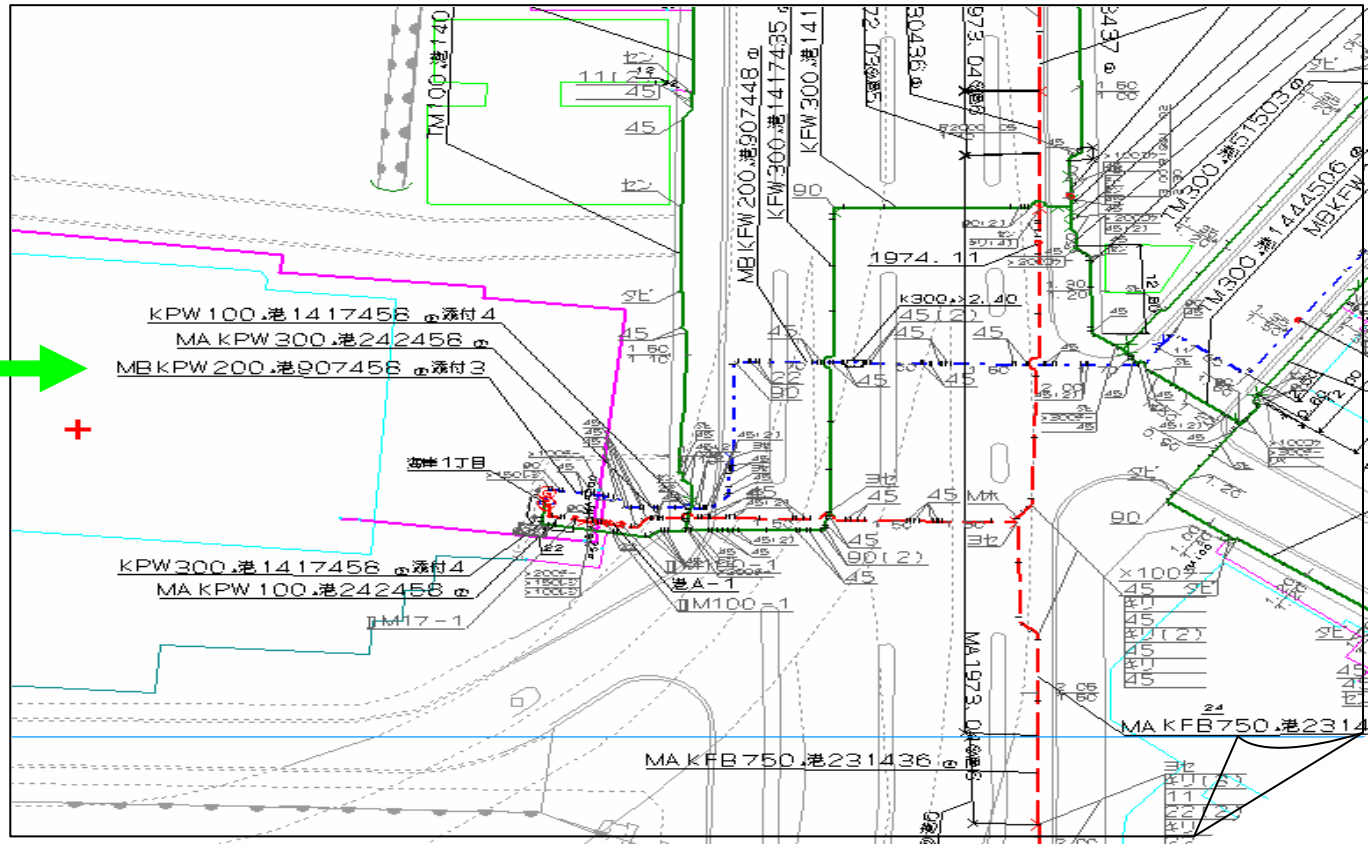
GIT (*Geographic Information Technology*)

GIT is now indispensable for many aspects of our business





40,000 drawing
service pipe
house pipe
domestic meter
about customer name

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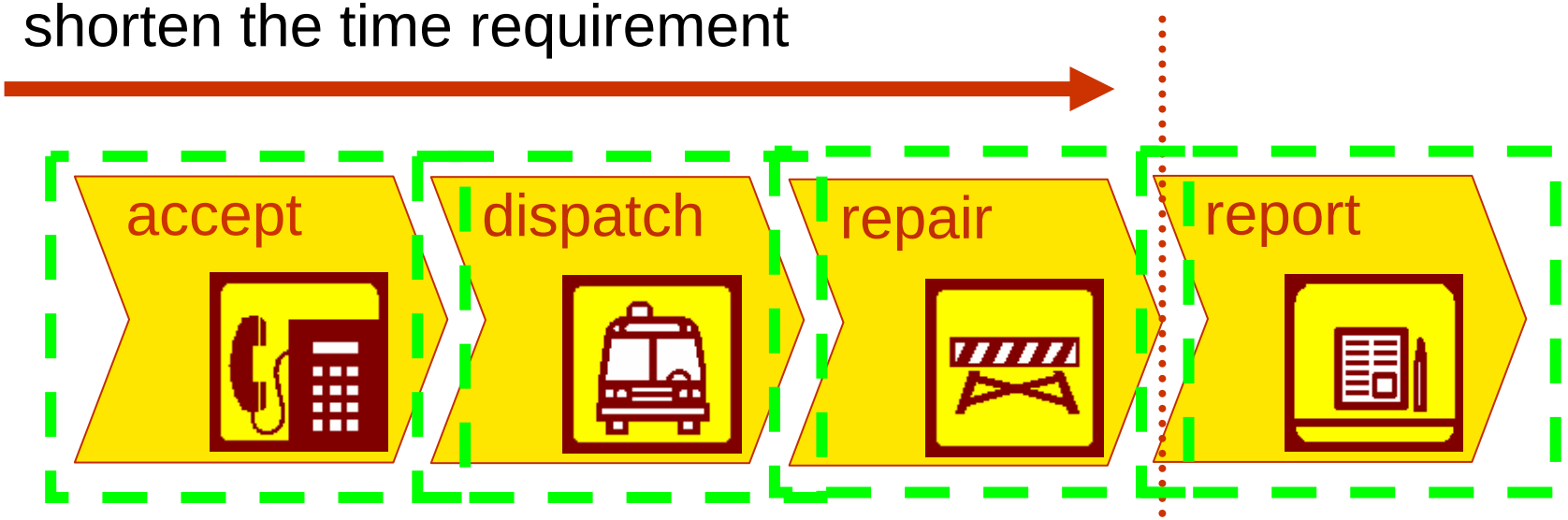
For maintaining customer safety

Our system must manage workflow effectively to minimize time requirements

We work 24 hours a day, 365 days a year!!

160,000 calls per year handled by 820 workers

shorten the time requirement



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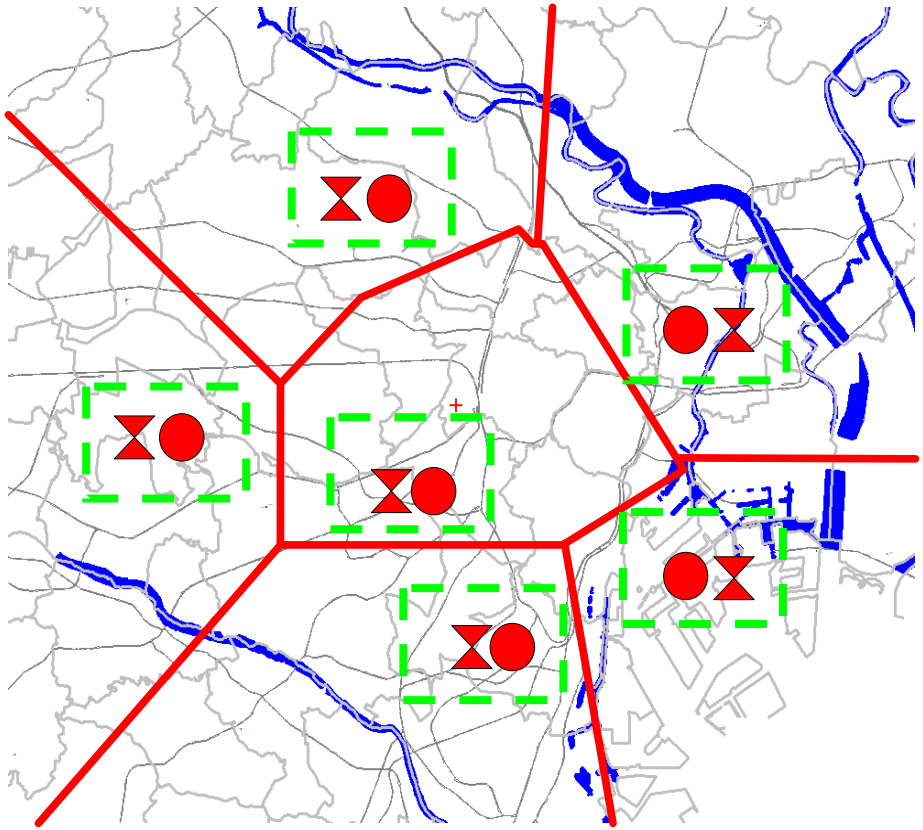
Traditional Organization

Divided into 6 locally-optimized areas



Local command office

Local field worker base

Each base must keep enough workers available to ensure coverage of its own area.

Not optimized!!

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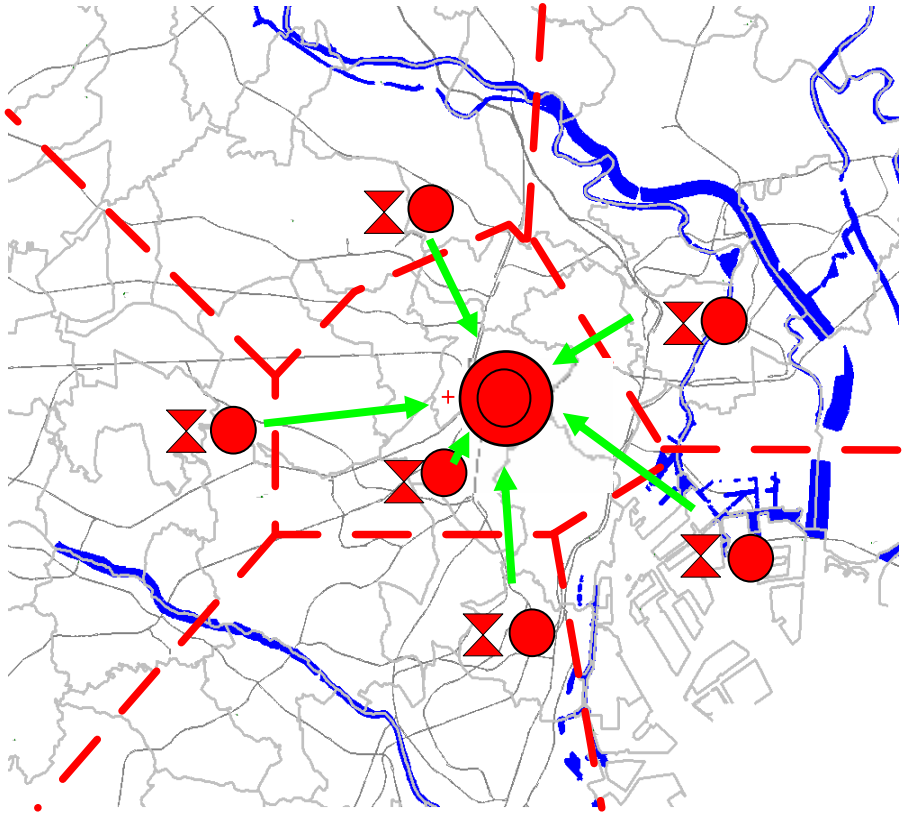
Integrated Command Center

How to achieve a good balance between maintaining safety and reducing costs



Local command office

Integrated command center

Local field worker base

Integrating the control centers enables them to support each other and make the most effective overall assignment of workers.

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Purpose

To make the command center integration
a true success
by using GIT to solve outstanding issues.

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5. System Composition

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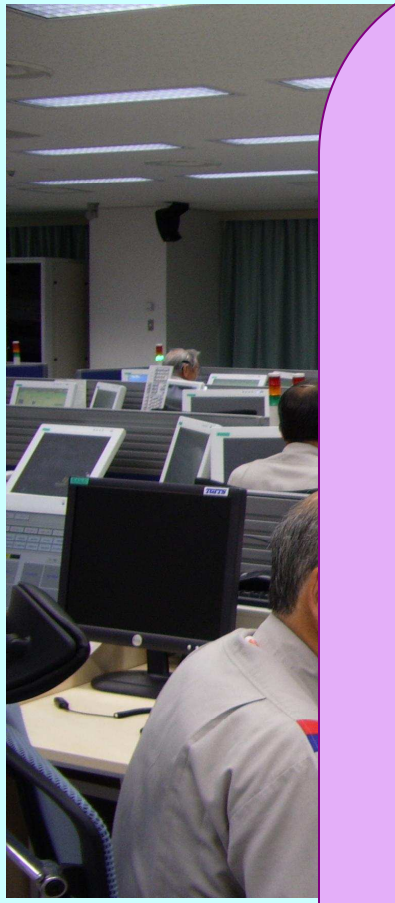

Field Worl

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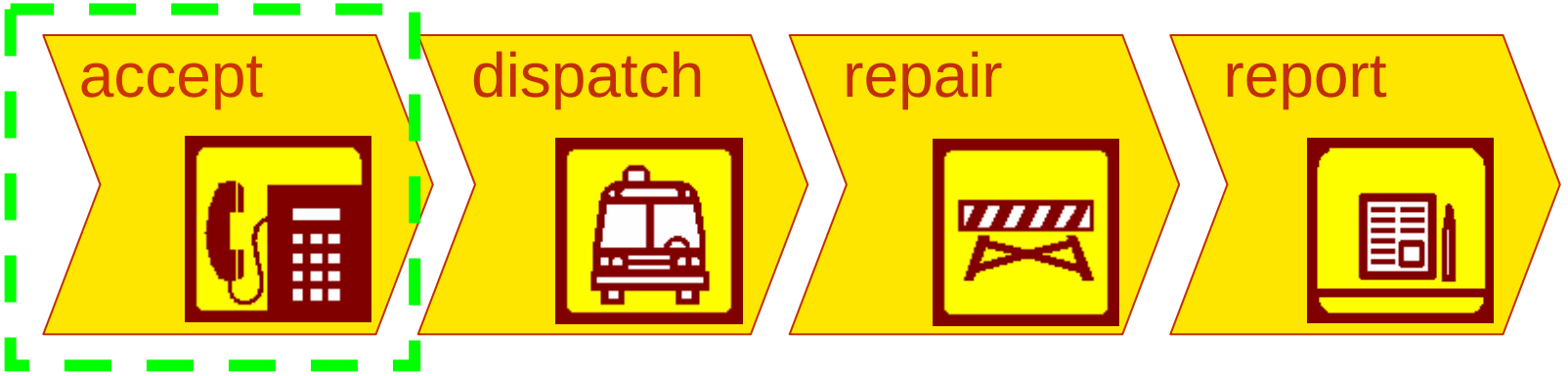
Accept Phase

Analyze leakages over a wide area



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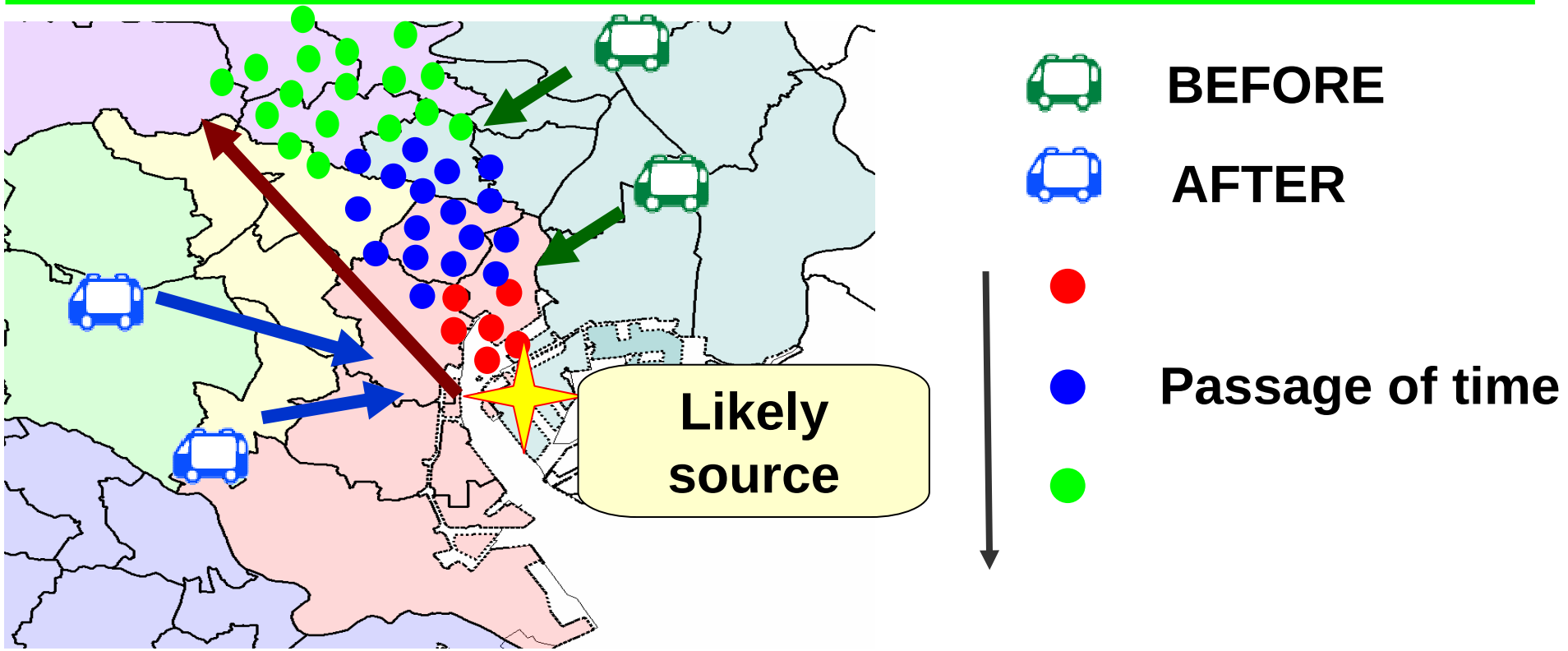
Time Series Analysis

Use time differentials to track down a leakage
– earlier calls are closer to the source



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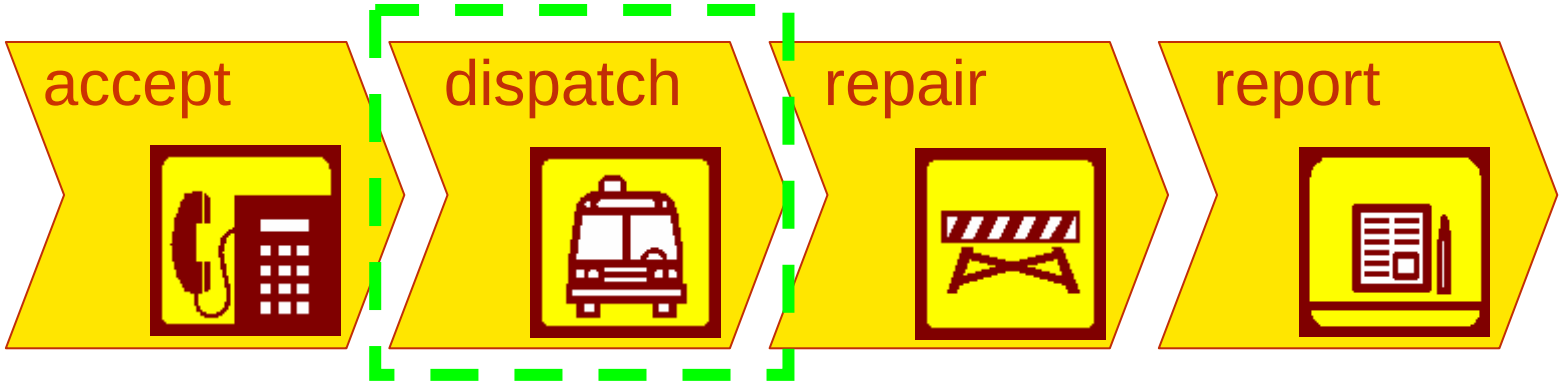
Dispatch Phase

Enable dispatching across area boundaries



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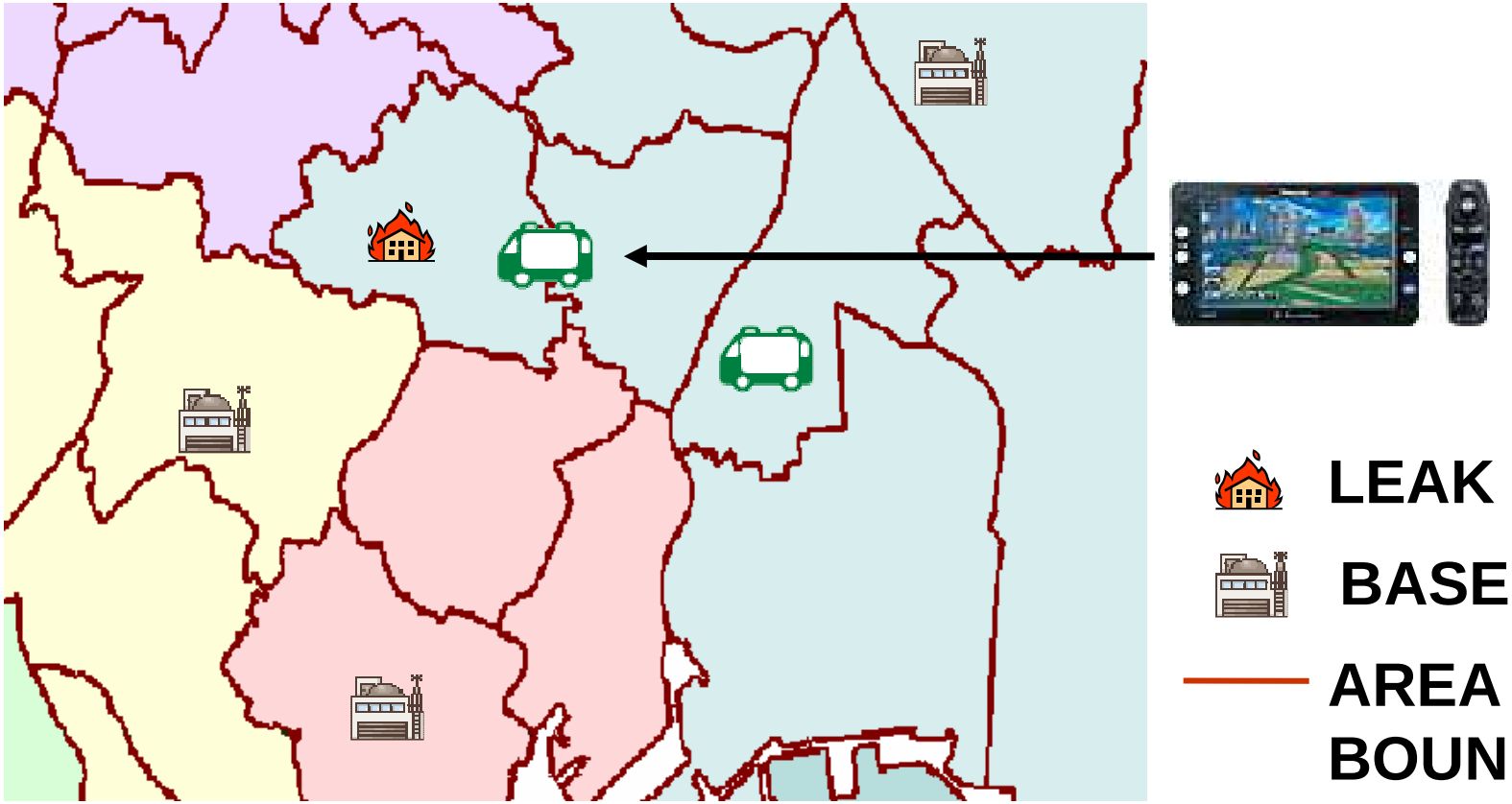
Real-time grasp of position

two-dimensional relations come to light



LEAK POINT

BASE

AREA BOUNDARY

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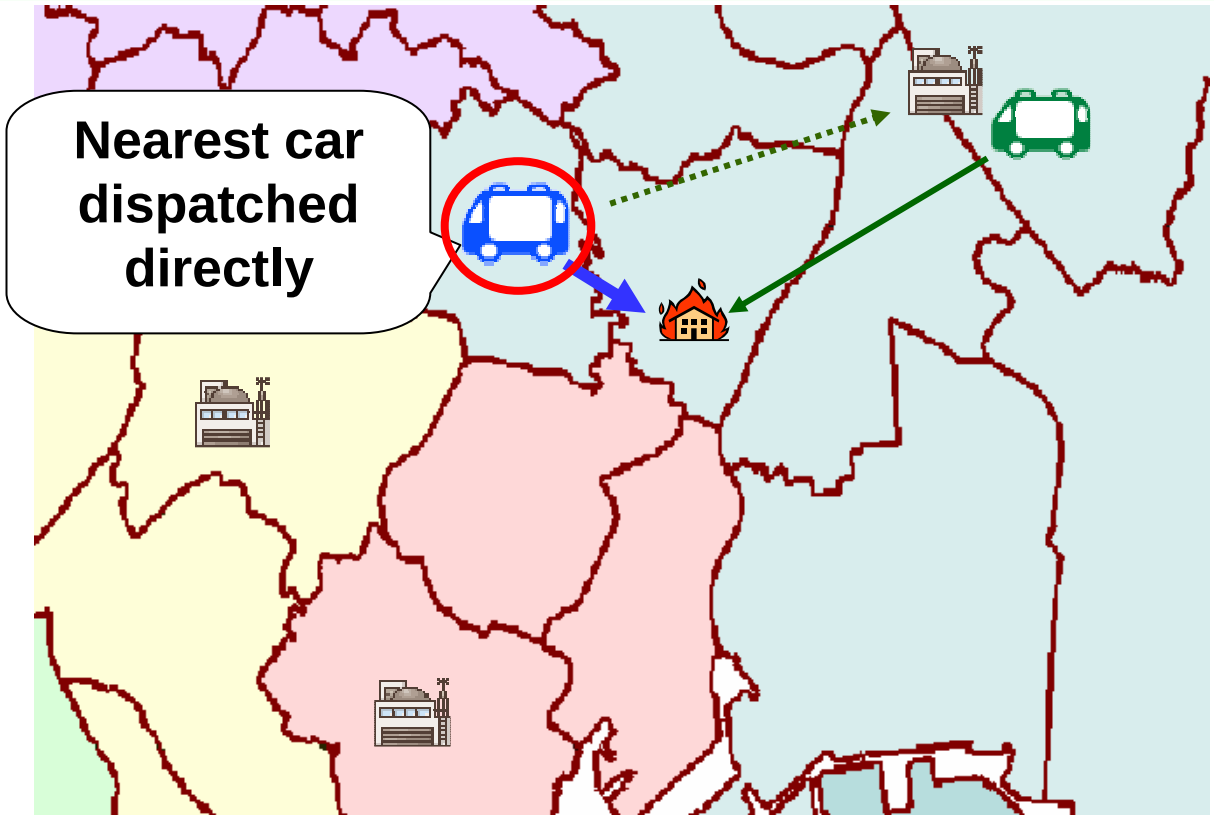
No Return to Base

Dispatch cars directly from call to call
- no need to return to base between calls



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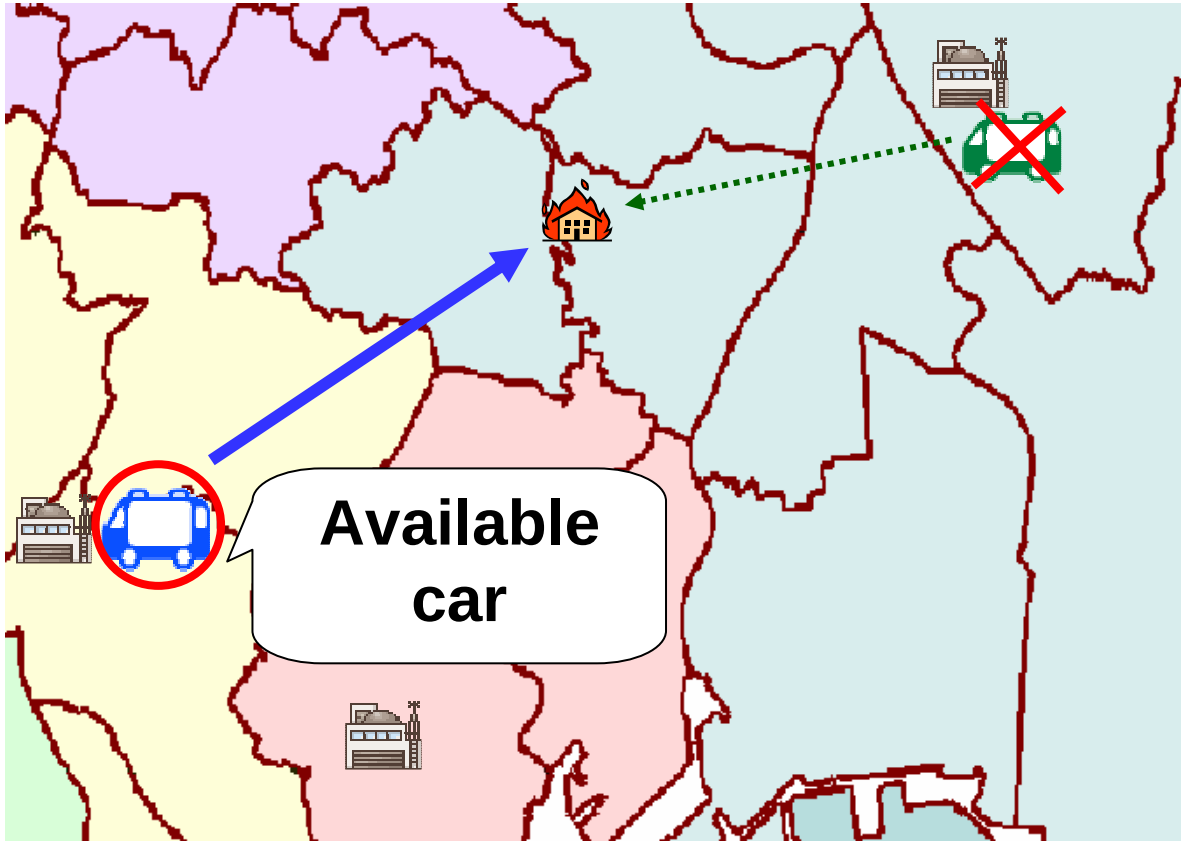
Across Area Boundaries

Dispatch the nearest car regardless of area boundary



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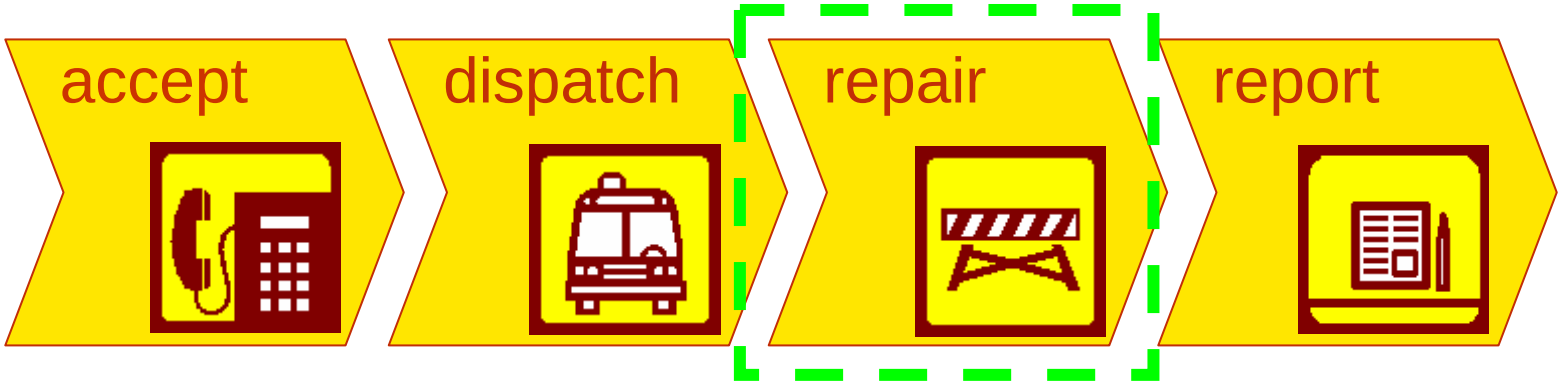
Repair Phase

Share information between commanders and field workers



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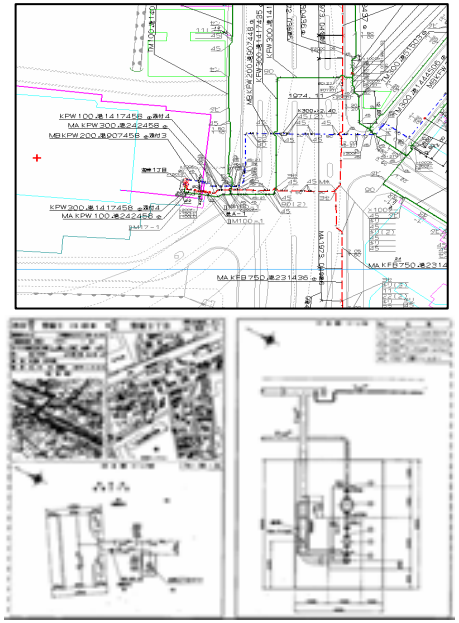
Data gathering and sharing

Effective distance was closed to zero by data sharing

Information security is properly protected on strong, mobile PC

- Latest pipeline data available through rapid GIS
- House pipe blueprints
- Customer Information



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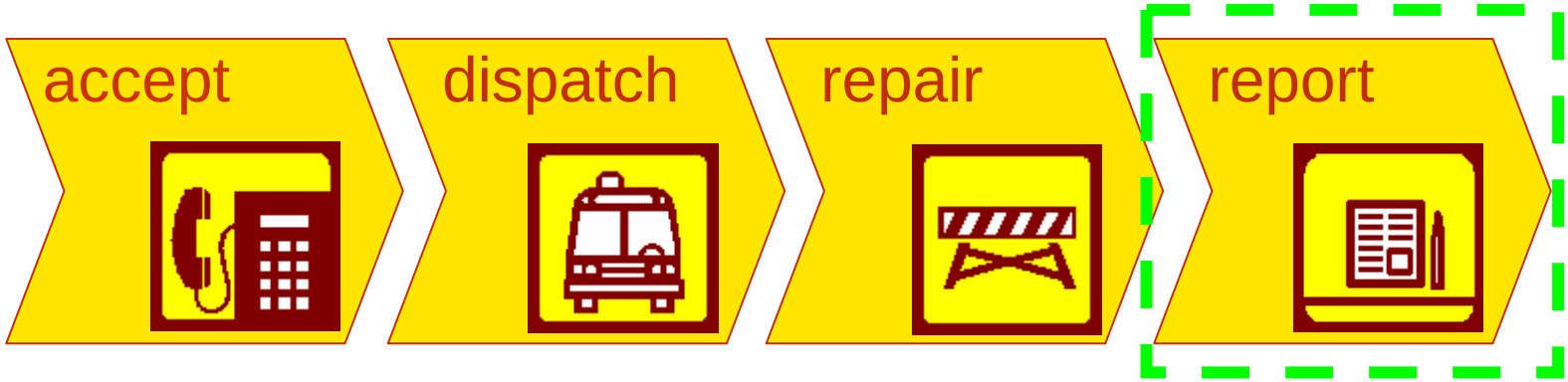
Report Phase

Reduce reporting time after repair



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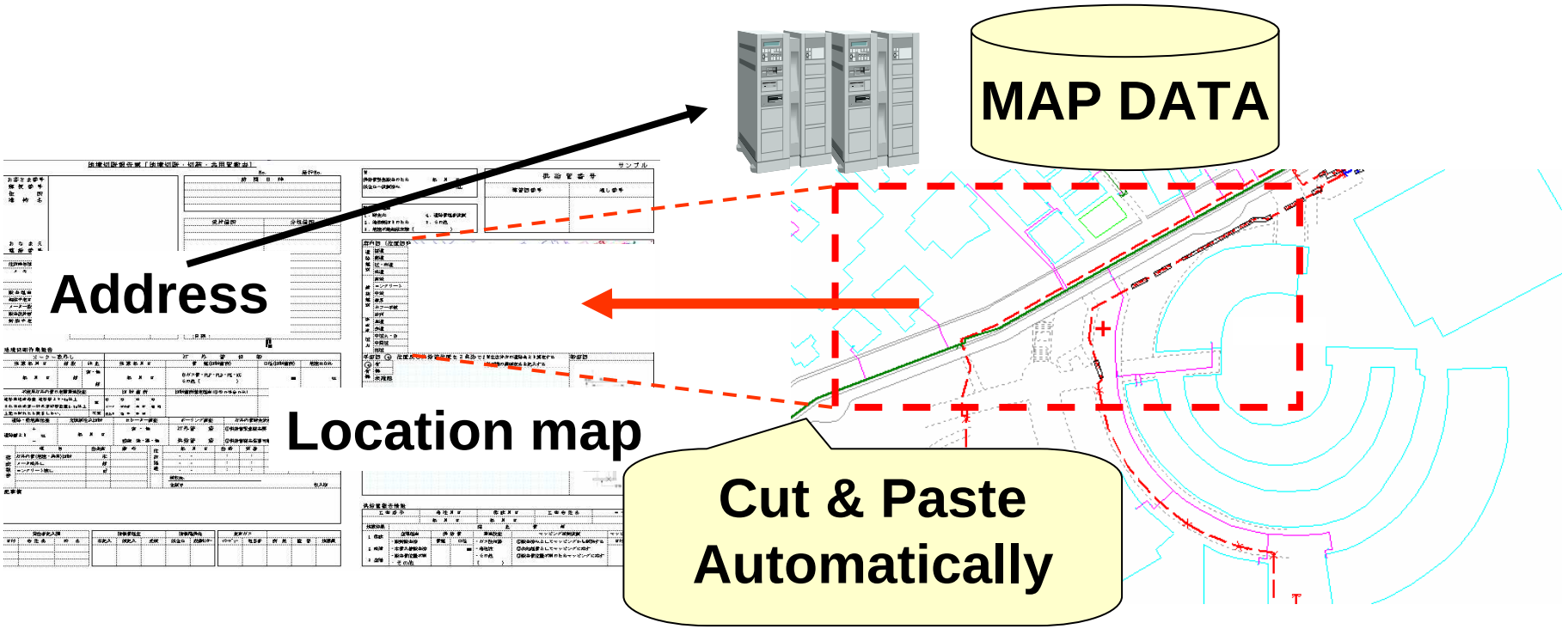
Reduced Reporting Time

Maps in reports can be automatically derived from the address



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Effects

We expect the reduction of 12million dollars in 6 years!!

Accept	Grasp large-scale leakages visually, handle them effectively.
	→ Dispatch accurately and speedily
Dispatch	Realize the most appropriate allocation of the car
	→ Arriving the spot speedily
Repair	Share & Gather the necessary information speedily
	→ Improve the quality of the work
Report	Reduce reporting time
	→ Increase the number of repairing work per person

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CONCLUSIONS

- We have successfully restructured our organization and maintenance operations, changing them step by step between April 2005 and August 2005.
- We achieved a good balance between safety levels and cost reductions by integrating command centers.
- Geographic information technology (GIT) incorporating time concepts contributes greatly to the efficiency of gas emergency maintenance work.

Thank you very much for your kind attention.

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