Around the World with FME

LA RIOJA, SPAIN

Ana García de Vicuña
Pablo Martínez
Gobierno de La Rioja

MBTiles format

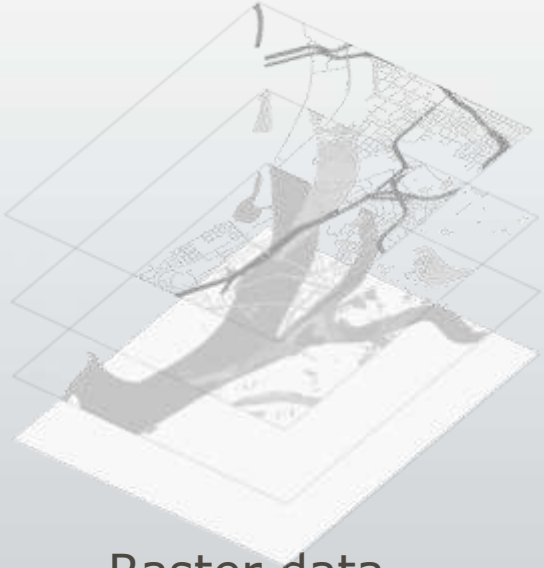
Store pre-cache tiles in a sqlite database to speed web mapping
Implemented in the workbench

Mapnik

- Toolkit for making high quality raster maps
- Complex styles and simbology
- FME transformer since FME 2014 (MapnikRasterizer)

Multilevel tile cache generation engine

Input



- Raster data
- Vector data
- Text labels
- Parameters (zoom, bbox,…)

Apply symbology

MapnikRasterizer =
f(zoom)

Tiled data

WebMaptiler
(GoogleMaps compatible)

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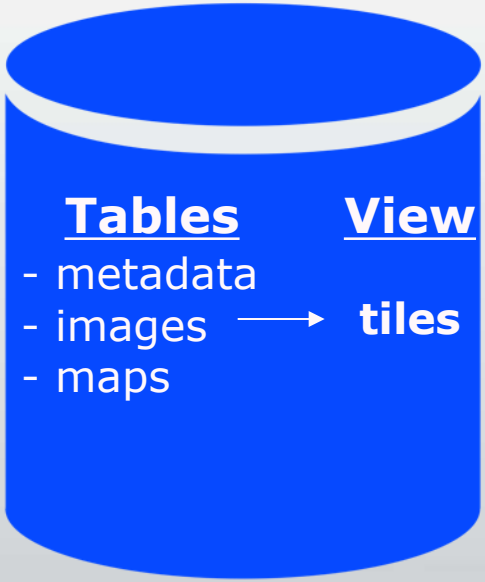
Multilevel tile cache generation engine

Optimizing MBTiles

Water	Land	Mix
60%	38%	2%

Save unique tiles

MBTiles database



Tiles TMS

Output

Mbtiles
f(zoom)

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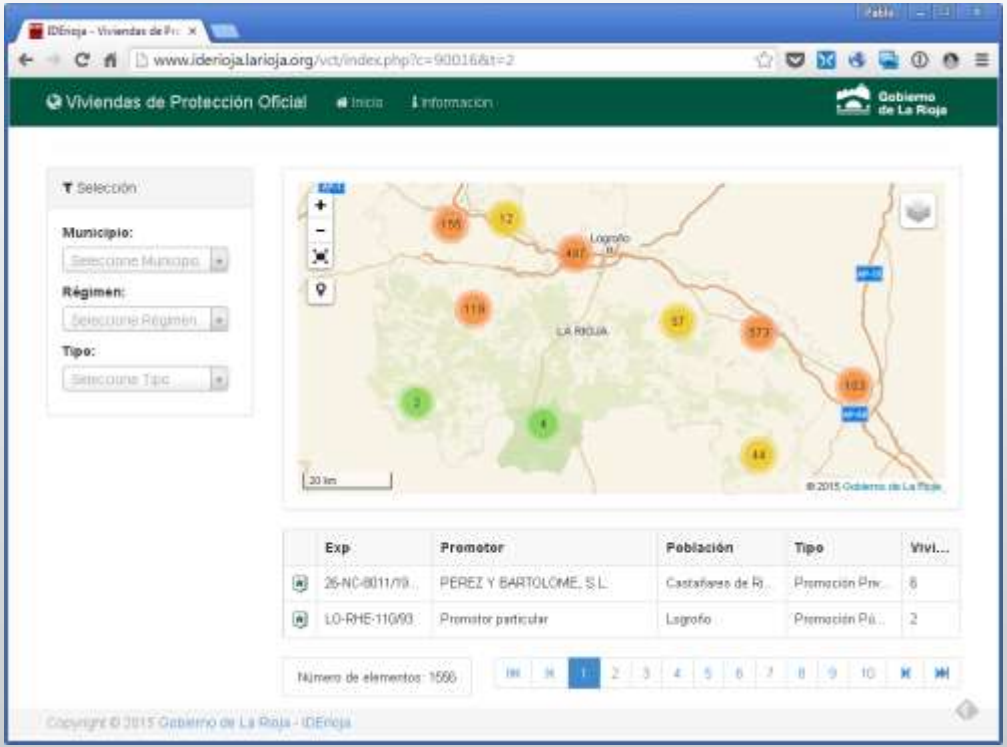
Multilevel tile cache generation engine



http://bit.ly/iderioja

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Thank you very much!!!

See you in Barcelona…

View the full presentation at
http://goo.gl/0dqjR4
(en español)

Ana García de Vicuña

Pablo Martínez

Gobierno de La Rioja

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Geostor: State GIS Clearinghouse Cloud Migration

ARKANSAS, USA

Seth LeMaster
Tony Davis

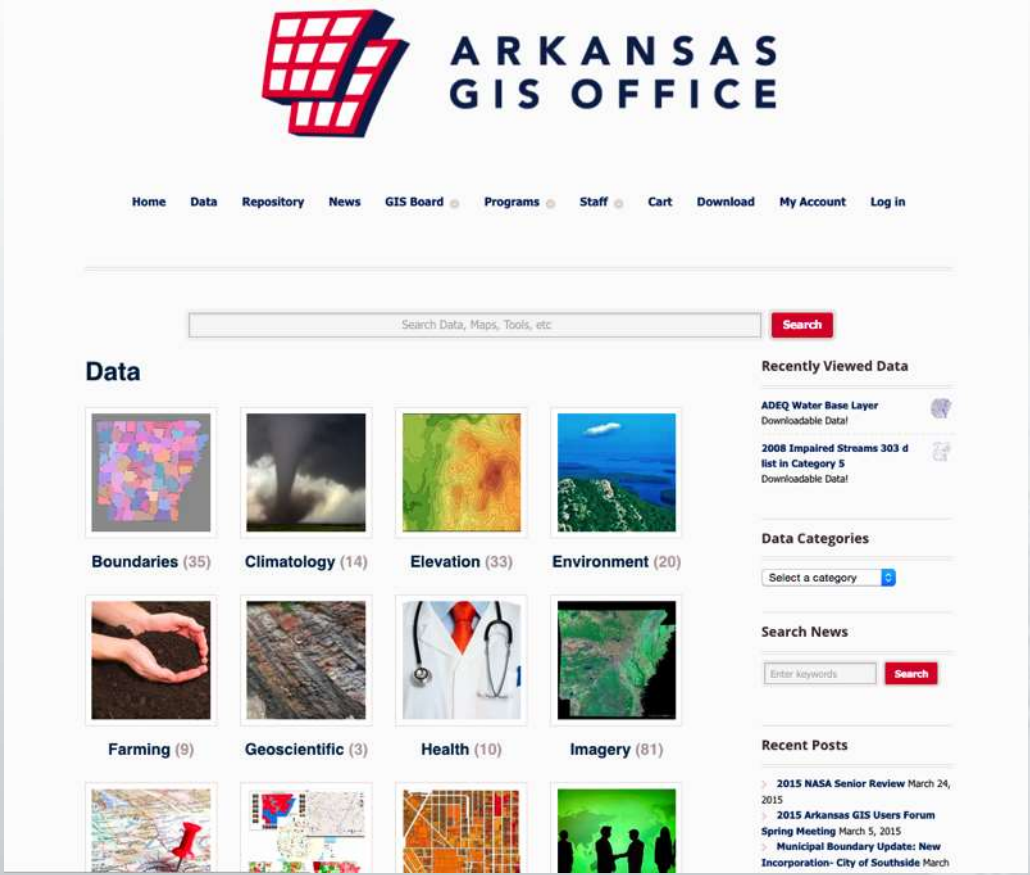
Arkansas GIS Office

Overview

Arkansas GIS Clearinghouse

- GIS open data portal for the state of Arkansas
- 1222 monthly downloads (2,358 items downloaded)
- Users
  - 108 registered
  - 2,387 non-registered

Overview



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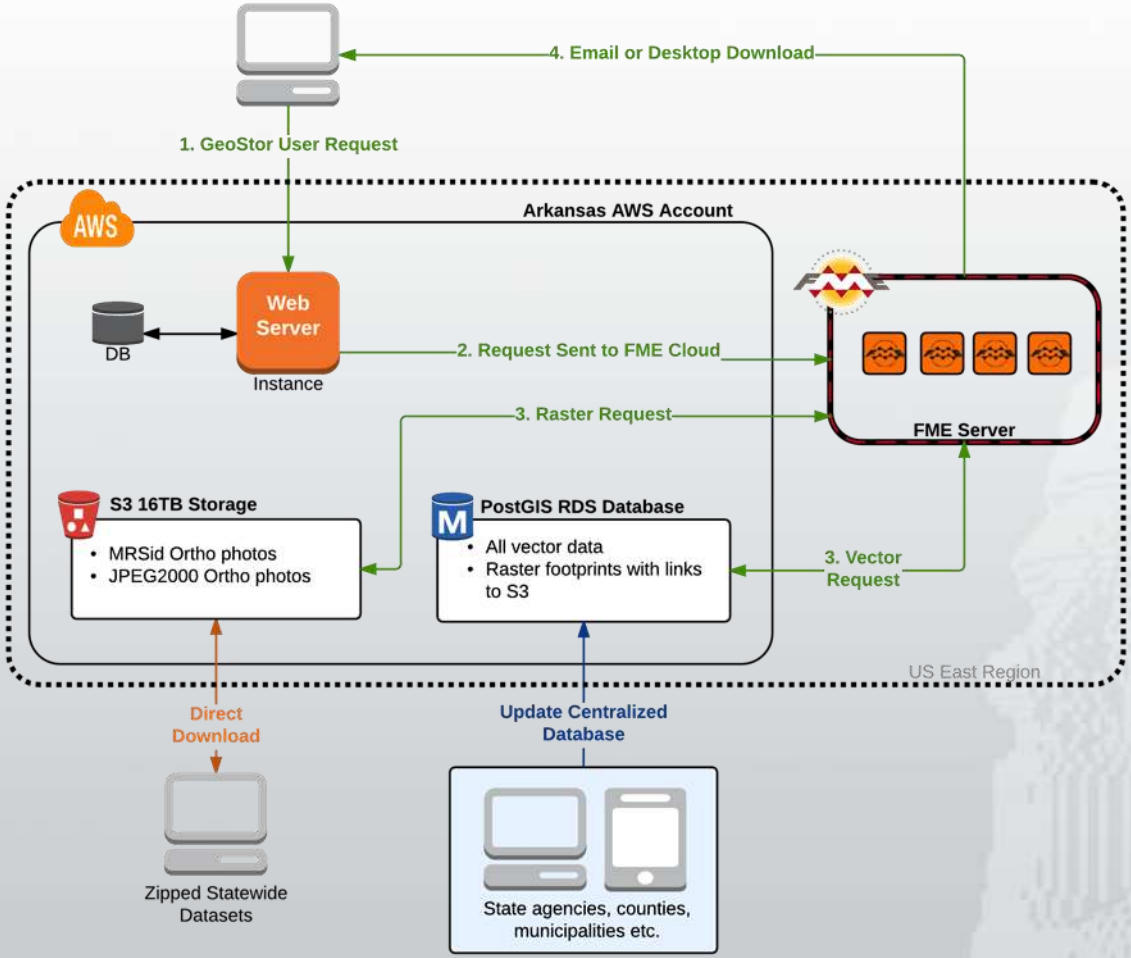
The Project - GeoStor

Improve the usability and migrate to the cloud.

- 300 vector datasets migrated to PostGIS RDS
- 3TB of raster data on AWS S3
- 4TB of historical raster data to AWS Glacier

Architecture



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Benefits of Cloud

- **Stability** – Fault tolerant data storage and Safe monitor and support FME Cloud architecture.
- **Security** – Leverage AWS compliance and FME Cloud security policies.
- **Simplicity** – Focus on problem not the administration
- **Price** – 3 times cheaper than on-premises

Costs: On Premises vs Cloud

On Premises	Monthly	Yearly	Up-Front
DIS Server Space	$3,200		
FME Dekstop		$6,000	
FME Server		$12,000	
Dell Hardware			$100,000
SQL Server			
Windows Server (Software Assurance)		$595	
Windows Server Enterprise (Software Assurance)		$385	
SQL Server (Software Assurance)		$270	
SQL Server (Licenses)		$294	
MS Server Std Edition (License)		$1,662	
MS Windows Server (Licenses)		$4,490	
Symantec		$680	
Tape Backups (No server)			$2,000
Total Recurring Montly Payment	$3,200		
Total Recurring Yearly Payment	$26,376		
Total One Time Cost (Every 3 yrs)	$102,000		
Total Three Year Cost	**$296,328**		
True Monthly Cost (/36 months)	$8,231.33		

Intangiable Costs
Hardware Maintenance Time
DIS Process
Non-Scaleable

Cloud	Monthly	Yearly	Up-Front
FME Dekstop		$6,000	
FME Cloud		$14,400	
EC2 Instance (m3.large)	$395.81		
AWS Storage (EBS 780GB)	$77.11		
AWS Storage (S3 2TB)	$61.30		
AWS Storage (Glacier 4.2 TB)	$42.41		
Total Recurring Montly Payment	$576.63		
Total Recurring Yearly Payment	$20,400.00		
Total Three Year Cost	**$81,958.68**		
True Monthly Cost (/36 months)	$2,276.63		

Our rack space costs (real estate on our data center floor) $3,800 per month. Add to that the hardware costs, etc and you start to see why moving to the cloud was a no brainer for us.

Anthony Davis, State Arkansas

UAV-Based LiDAR Data Collection & Analysis

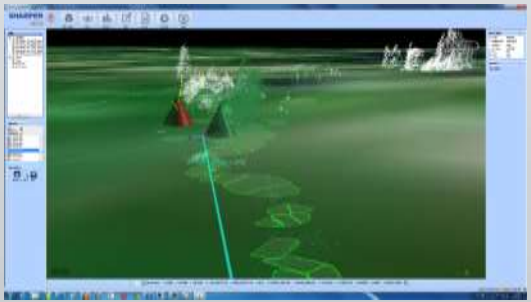
FINLAND

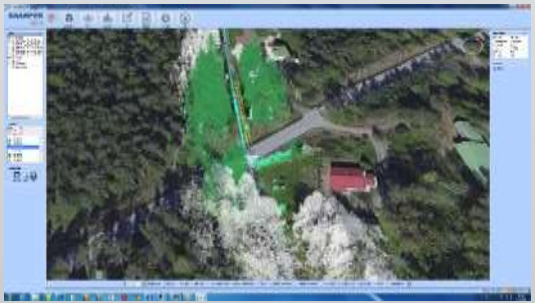
Ville Koivuranta

Sharper Shape Ltd.

Next Eagle® by Sharper Shape

- Our service fully automatically detects each vegetation issue that threatens the transmission network. We prioritize and visualize the vegetation observations to create ready management plans and work orders that customer could send to his subcontractors.
- We identified 3-5 times more issues in the areas that our solution inspected than with traditional methods.
- This enabled need based vegetation management.



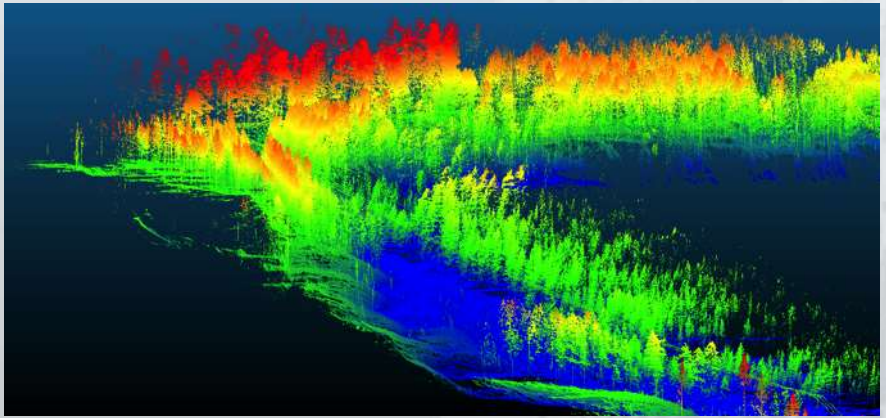


UAV Solution

- Sharper Shape UAV’s are capable Beyond Visual Line Of Sight flights with up to 1 hour flight time and up to 8 kg payload.
- Sharper Shapes UAV’s are equipped with high performance LiDAR, High resolution cameras, onboard computer and storage unit and high precision IMU (Inertial Measurement Unit)

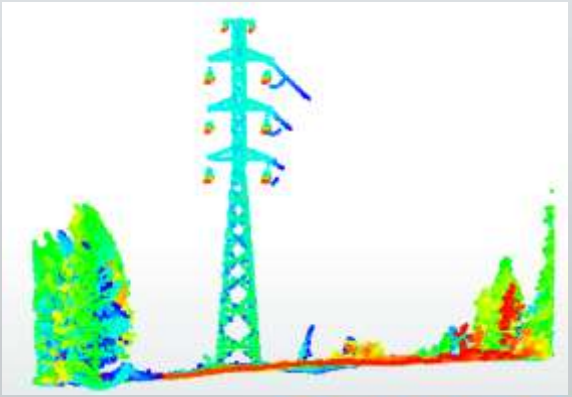
FME in Route Planning

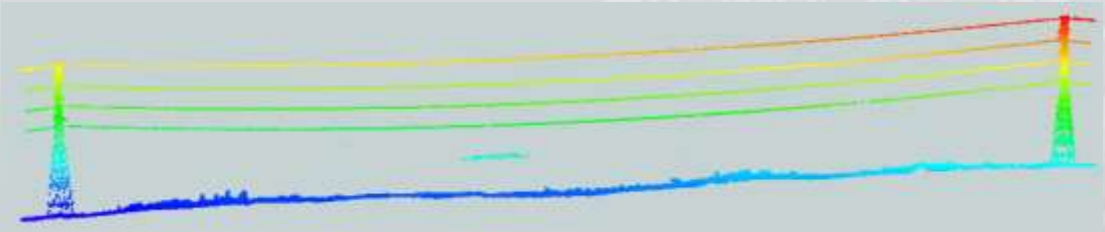
- Economically optimized flight routes are created using FME.
- The elevation information is sourced from existing point cloud or from national DTM.
- 3D shape polylines are uploaded to autopilot and the UAV follows the pre programmed flight line.



Customer Data Integration

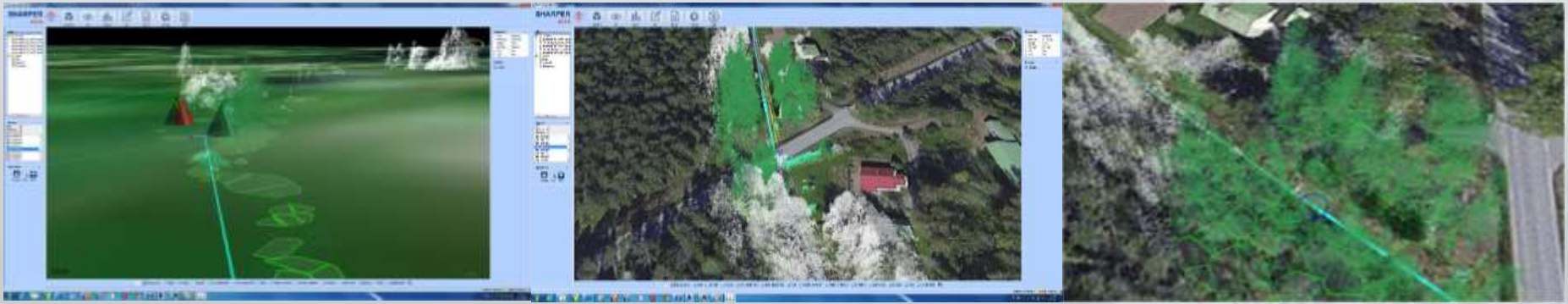
- FME is perfect to fulfill customer specific small needs.
- For example one customer wanted to be able to create cross-section images from network and it was done using FME
- Also all data conversions from customer NIS system to our systems are done with FME.
- FME is used to create PDF-map of the vegetation issues that can be used field personnel to do the vegetation clearances.



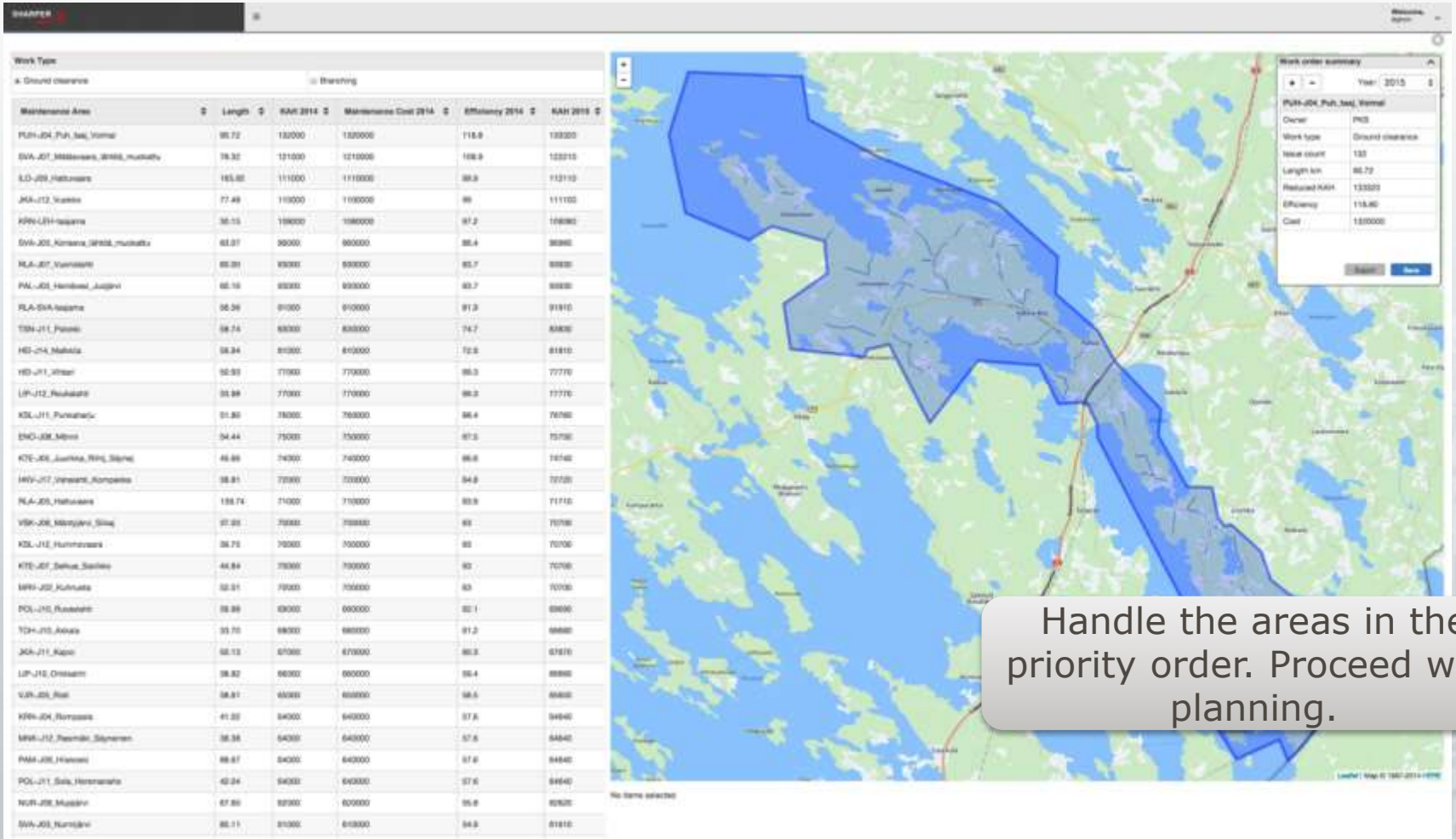


Prioritization Problem

- Distribution companies can have hundreds of thousands of vegetation issues.
- Vegetation management need to be targeted to where it is most needed.
- Economically optimized vegetation clearance plans created with FME can reduce expected losses caused by power interruptions up to 3-5 times more than legacy methods.



Vegetation Management Prioritization



Leveraging FME Cloud:

Near Real Time Global Web Map Tile Generation for Meteorology

CANADA
Pelmorex

The Weather Network

The Project

Produce web map tiles from a worldwide forecast meteorological model called ECMWF. Layers include:

- Precipitation
- Sea Surface Temperatures
- Ground Temperatures
- Wind speed and direction

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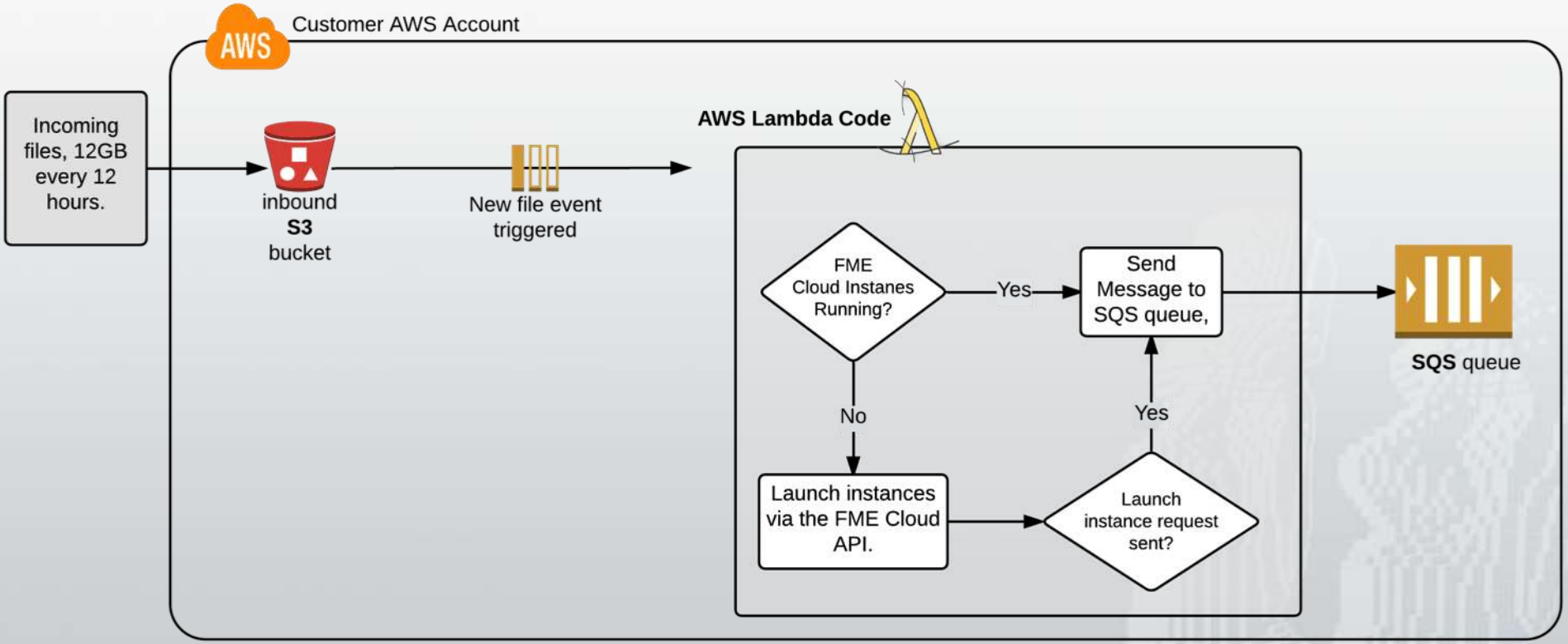
Challenges

- 880,000 tiles need regenerating every 12 hours.
- The maps are time sensitive so the data needs processing as quickly as possible.
- Each run needs around 80 hours of compute time.
- Their on-premises 10 engine FME Server did not have powerful enough hardware.

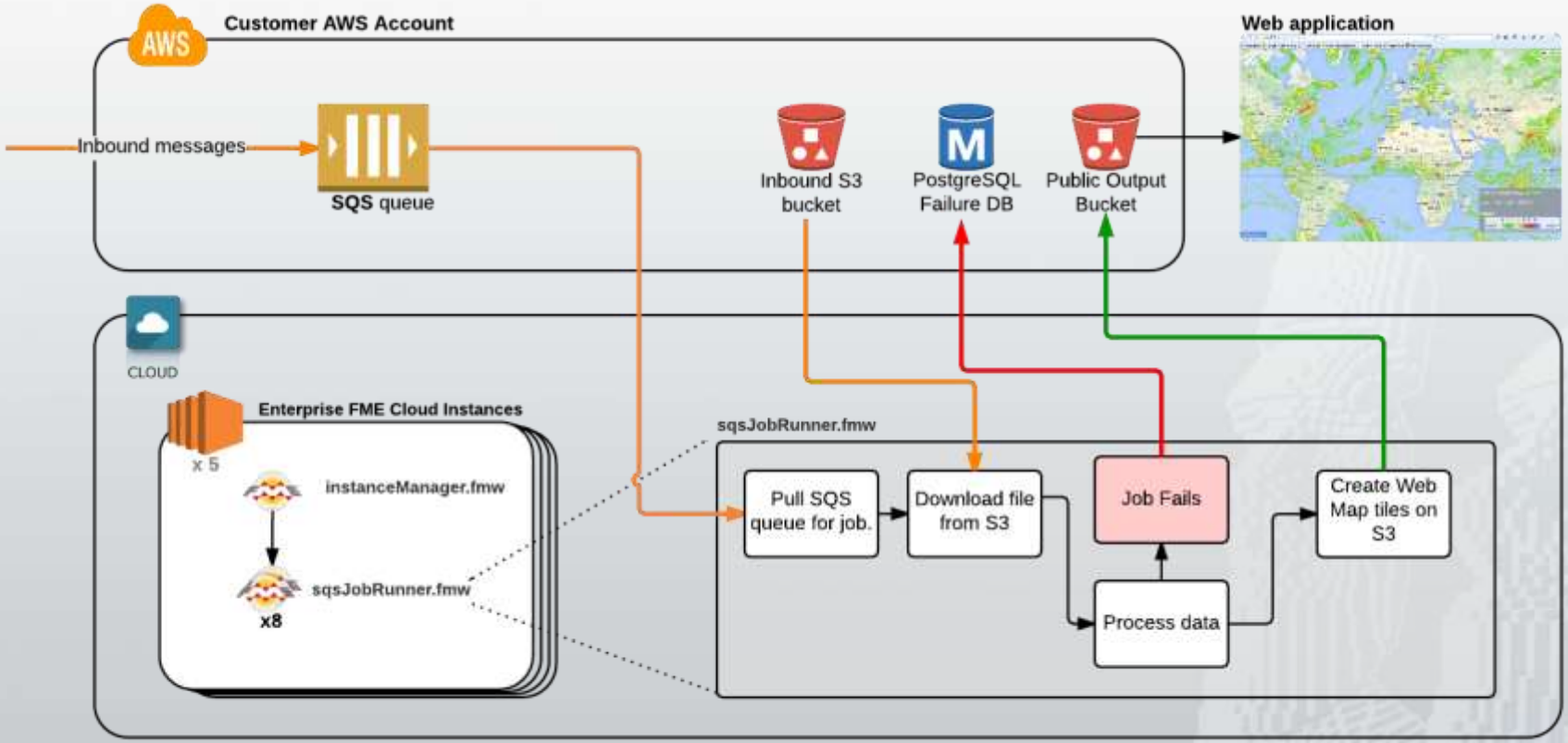
Solution

- Leverage FME Cloud elastic processing workflows.
- Provision FME capacity dynamically every 12 hours.
- Leverage AWS services such as S3, SQS and AWS Lambda.

Solution – Dynamically Provision Capacity



Solution – Processing Data using SQS



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Cost Analysis

- Costs $80 per run or $58,000 annually.
- On FME Server to replicate performance they would need 40 engines (~ $300,000) and **a lot** of hardware.

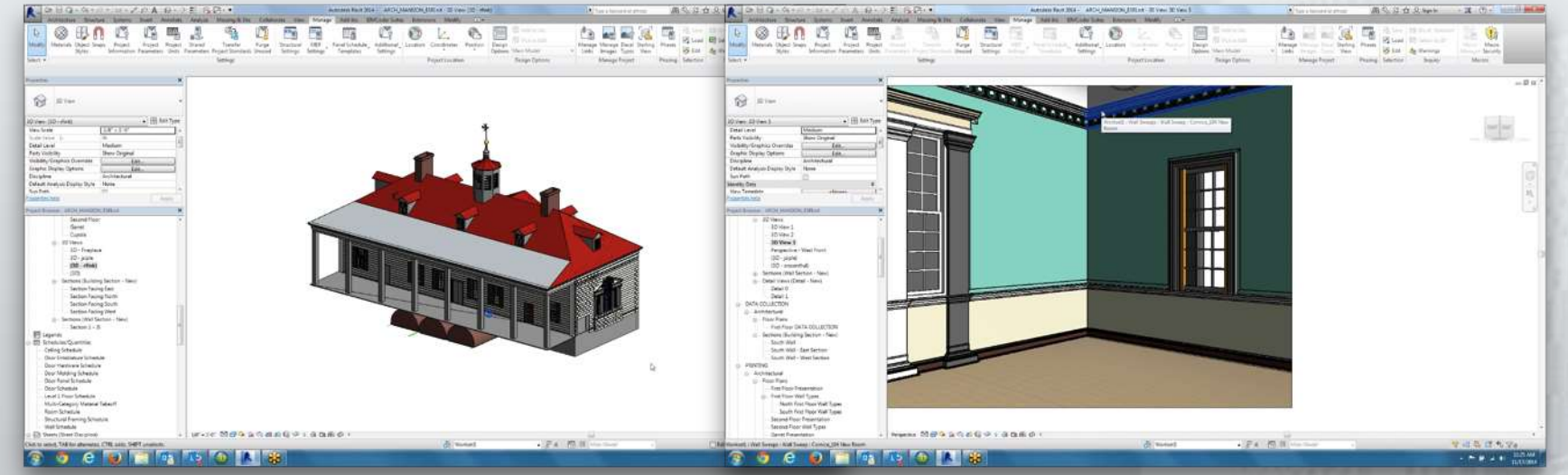
BIM to GIS at Mount Vernon

VIRGINIA, USA

Patrick Gahagan, Esri
Quinn Evans Architects
Mount Vernon Ladies' Association

Mount Vernon

- George Washington’s home, constructed between 1758 and 1778
- Mount Vernon Ladies’ Association tasked with restoration, interpretation, and preservation of grounds and structures
- Mansion laser scanned to create architectural-quality HBIM in Revit by Quinn Evans Architects



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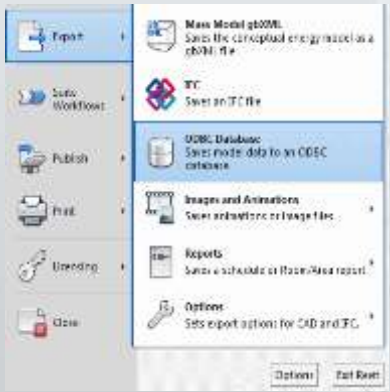
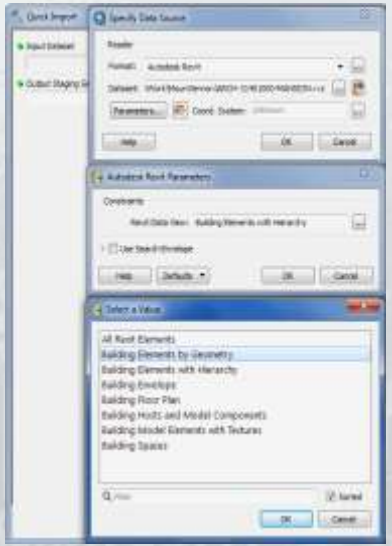
BIM to GIS via Data Interop

- Revit: Add coordinates and rotation from project north to true north
- Export to Revit Archive(.rvz) with FME Revit Exporter, attributes to spreadsheet
- Import to ArcGIS with Data Interoperability Extension (FME)
- Reconnect attribution





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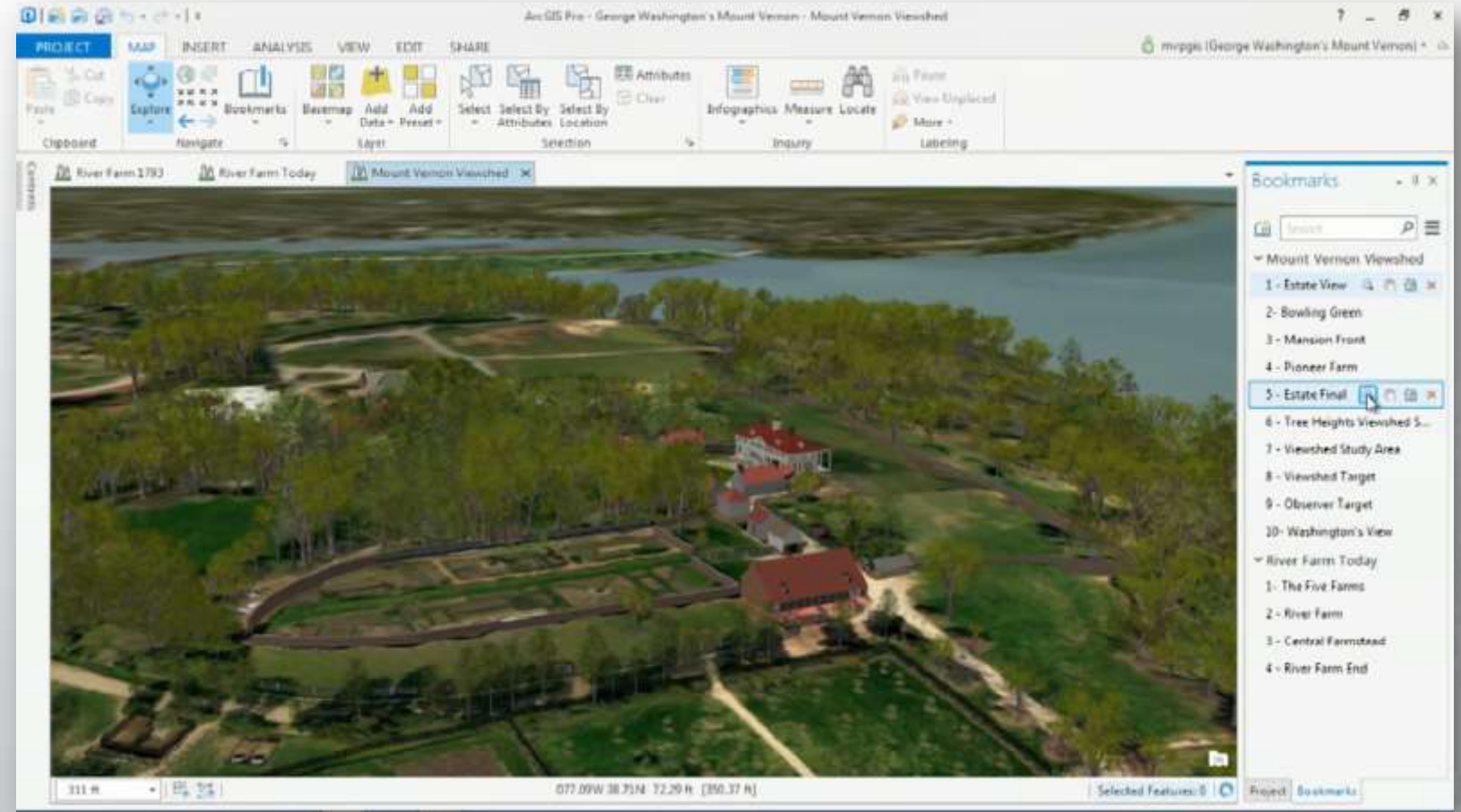
A Blended World



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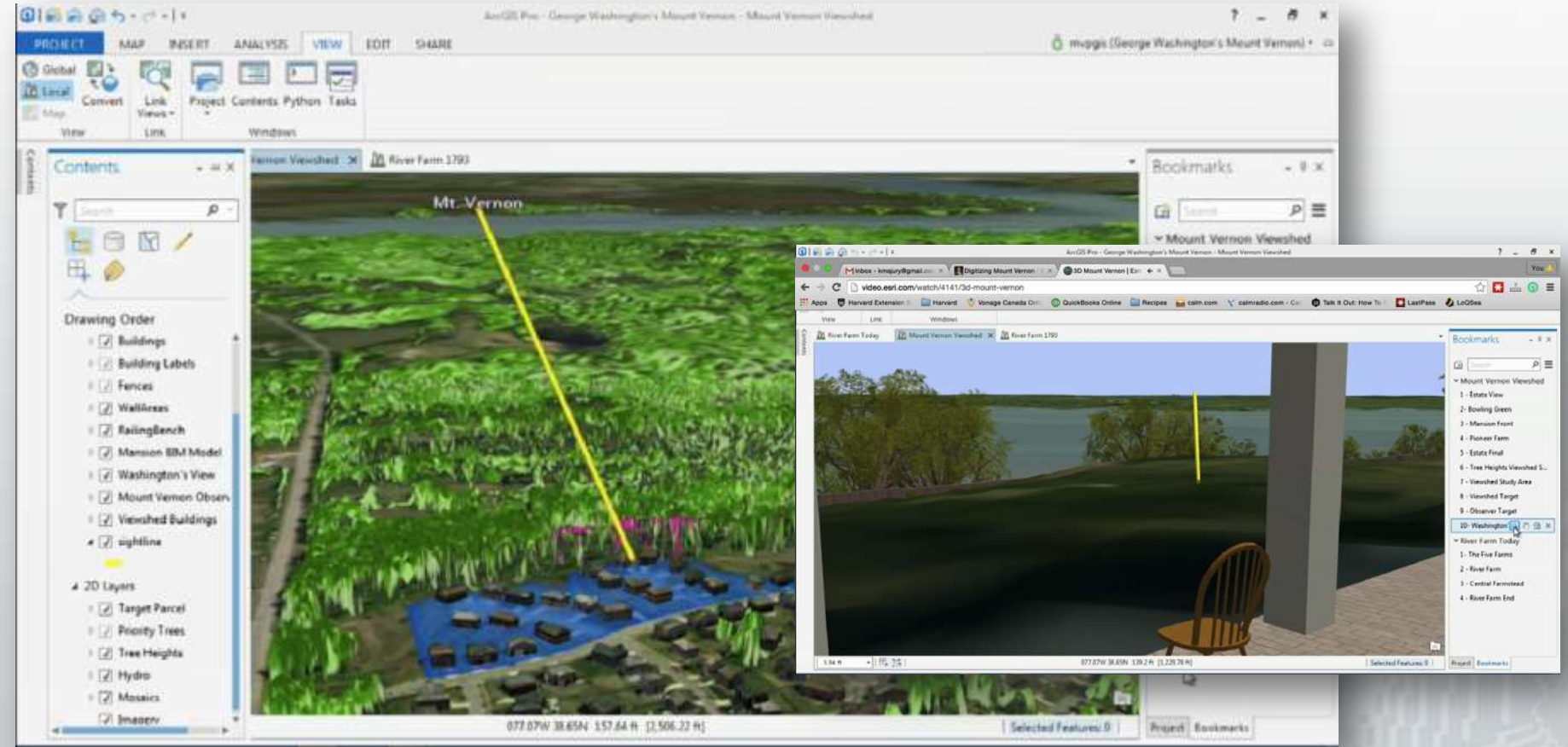
Viewshed Analysis



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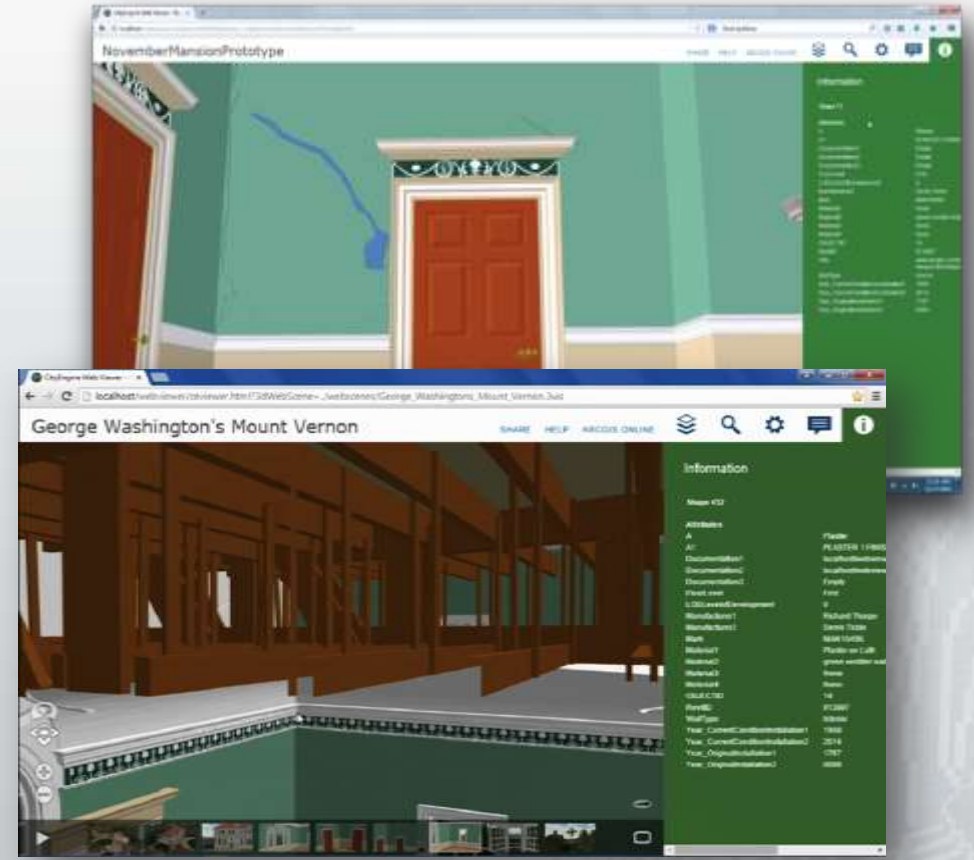
Stakeholder Access to Information

- Browser delivery provides data to everyone, even fire suppressant system designer
- Historical data identifies plaster from 1950 vs. 1787
- Framing details assist with optimal routing



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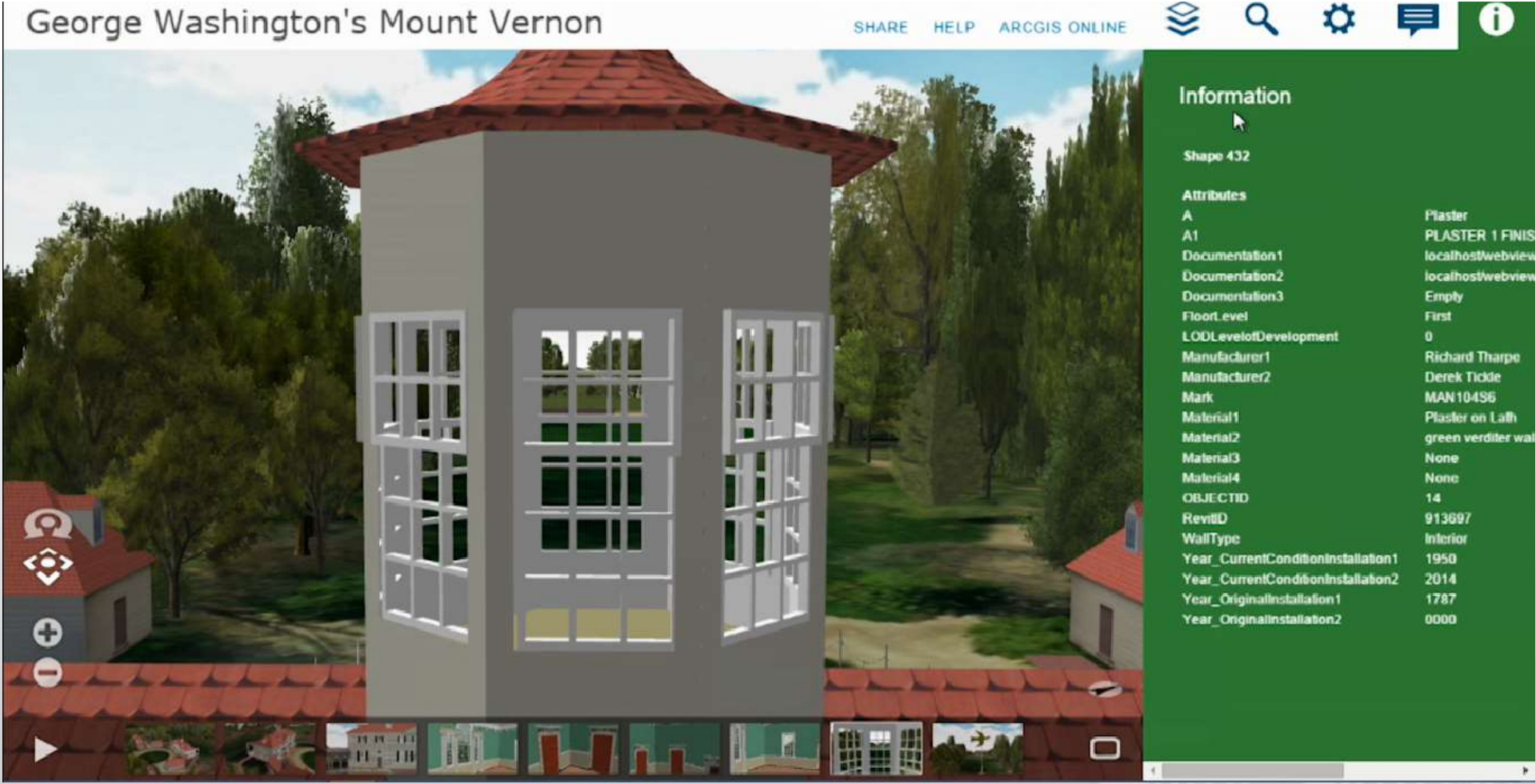

A navigable, queriable world provides minute detail and the big picture to all stakeholders – BIM/GIS pros or not.

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Oracle Spatial to SAP HANA at Alliander

NETHERLANDS

Stefan Koster
BI&A Architect

alliander

Oracle Spatial to SAP HANA at Alliander

Network company Alliander comprises the Liander, Endinet and Liandon companies. Together, we ensure the maintenance, innovation, expansion and adaptation of the energy network. We transport electricity and gas through our network to 3.3 million customers in the Netherlands.

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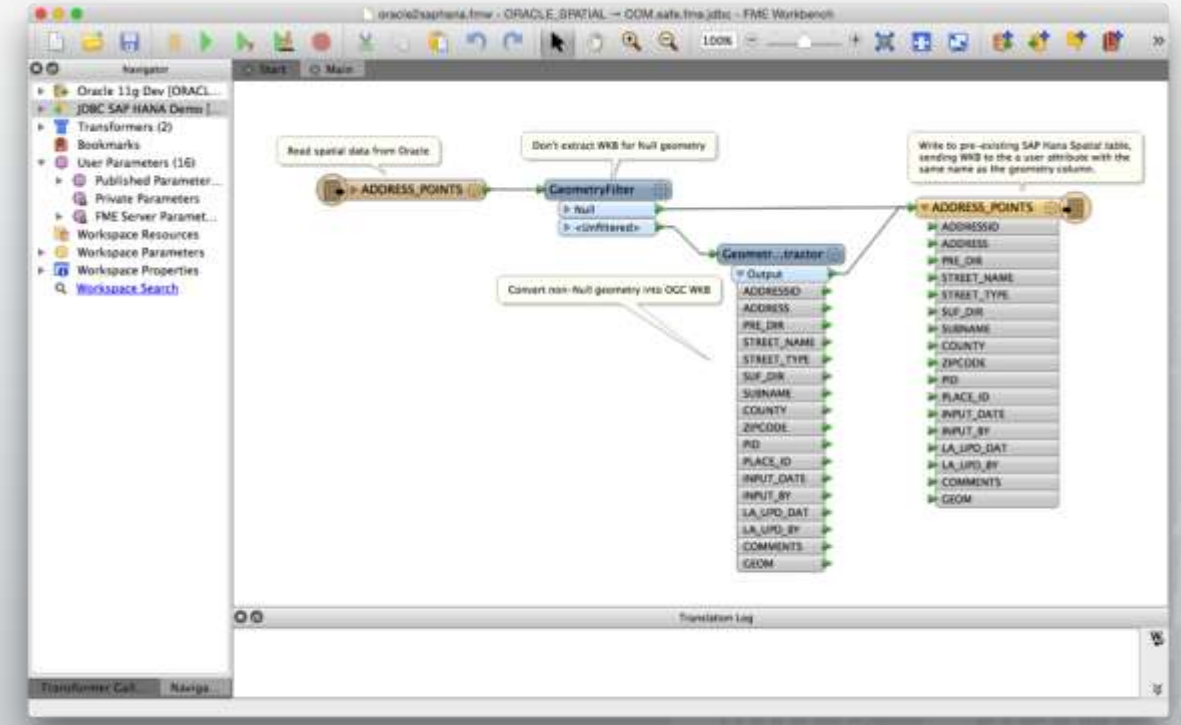
The Challenge

- Alliander wants repeatable workflows to move data from Oracle Spatial/Esri Geo Data warehouse to SAP HANA for advanced SAP/GEO BI analysis
- Departments aligning, GIS has FME already
- FME preferred, complex spatial handling

- Will FME do the job?

JDBC Technology Preview

- Java Database Connectivity tech preview in FME 2015
- Configured for SAP HANA
- Transformers massage geometry into expected format



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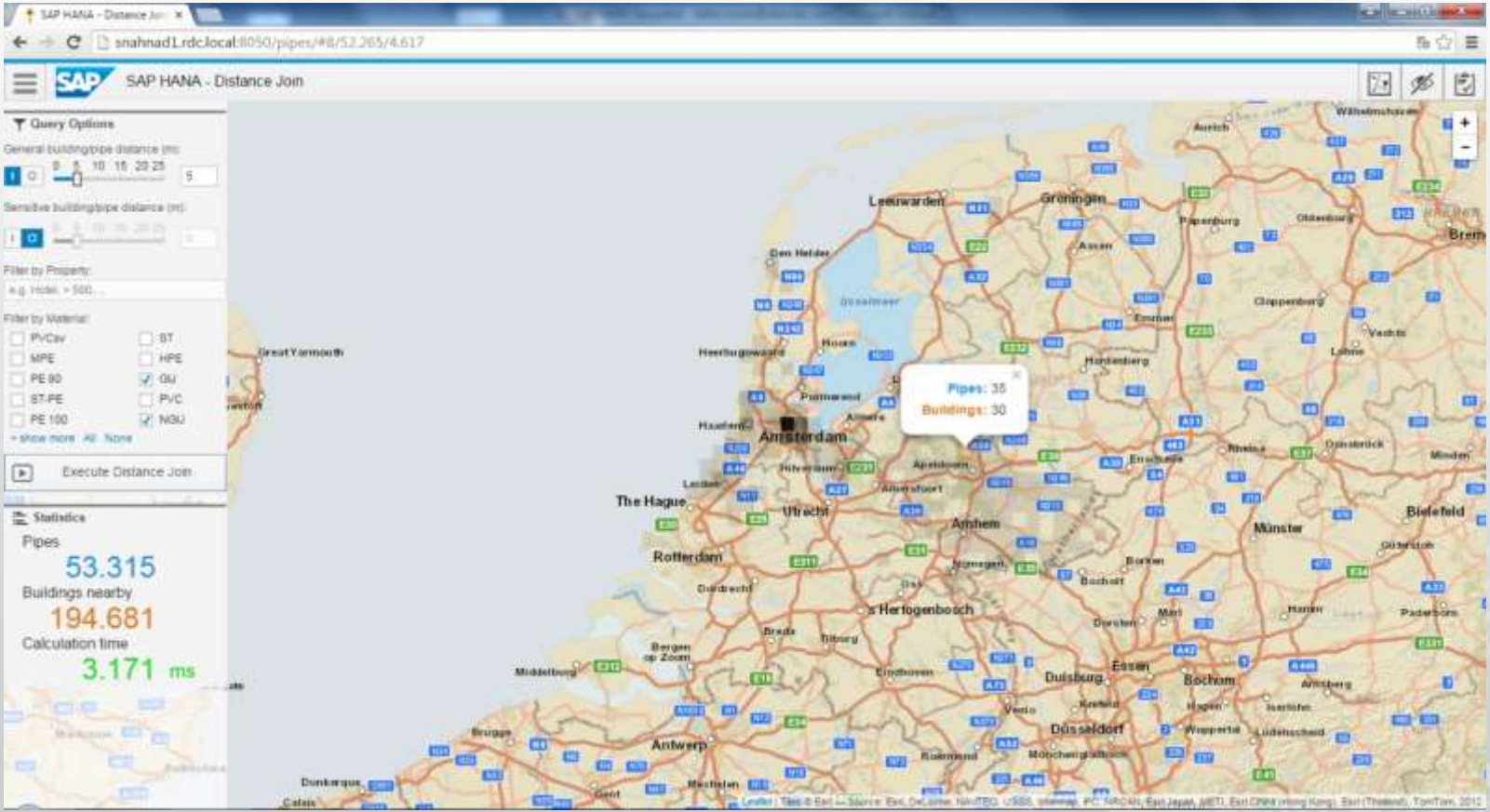
How did FME do?

- Complete ETL process ***2.5 to 3 times faster*** than the tested alternative
- Advanced spatial handling of FME enables automation
- ETL tasks across departments on a common platform

The Results



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Thank You!

- Questions?

- For more information:
  - blog.safe.com
  - Ken.Bragg@safe.com

@kenatsafe #FMEWT

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