

Around the World with FME



**WORLD TOUR
2015**



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

Zoom 0 = 1 Tile (256*256px)



Zoom 1 = 4 Tiles (256*256px)



Zoom 2 = 16 Tiles (256*256px)



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Mapnik



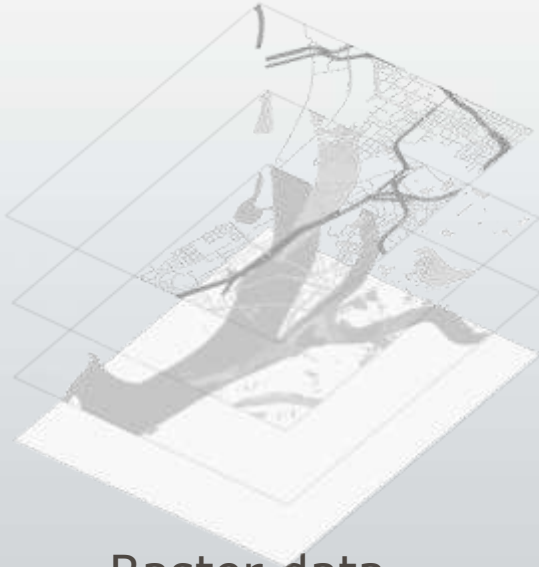
- Toolkit for making high quality raster maps
- Complex styles and symbology
- FME transformer since FME 2014 (MapnikRasterizer)



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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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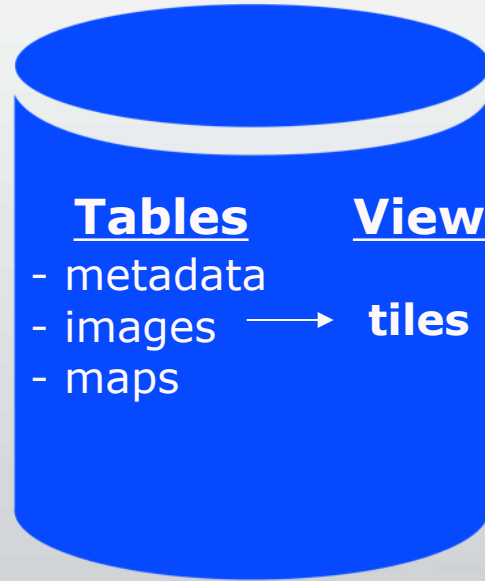
Multilevel tile cache generation engine

Optimizing MBTiles



Save unique tiles

MBTiles database



Tiles TMS

Output



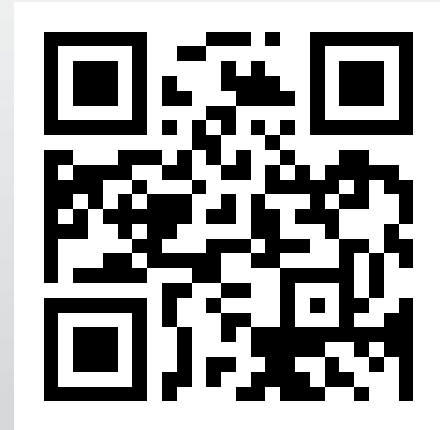
Mbtiles
f(zoom)

Multilevel tile cache generation engine

The screenshot shows a web application interface for 'Viviendas de Protección Oficial' (Official Protection Housing) in La Rioja. It features a map with numbered markers and a table of housing data.

Exp.	Premotor	Población	Tipo	Vivi...
25-NC-0011/79	PEREZ Y BARTOLOME, S.L.	Castañares de R...	Premación Priv...	6
LO-RHE-110/93	Premotor particular	Logroño	Premación Pú...	2

Número de elementos: 1556



<http://bit.ly/iderioja>

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

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Overview



The screenshot shows the Arkansas GIS Office website homepage. At the top left is the logo, a red and black grid pattern. To its right is the text "ARKANSAS GIS OFFICE" in a bold, blue, sans-serif font. Below the logo and text is a horizontal navigation menu with the following items: Home, Data, Repository, News, GIS Board, Programs, Staff, Cart, Download, My Account, and Log in. Below the navigation menu is a search bar with the placeholder text "Search Data, Maps, Tools, etc." and a red "Search" button. The main content area is divided into two columns. The left column is titled "Data" and features a grid of 12 data category tiles, each with a representative image and a count in parentheses: Boundaries (35), Climatology (14), Elevation (33), Environment (20), Farming (9), Geoscientific (3), Health (10), and Imagery (81). The right column contains three sections: "Recently Viewed Data" with two entries, "Data Categories" with a dropdown menu, "Search News" with a search bar and button, and "Recent Posts" with a list of three news items.

ARKANSAS GIS OFFICE

Home Data Repository News GIS Board Programs Staff Cart Download My Account Log in

Search Data, Maps, Tools, etc. Search

Data

Boundaries (35) **Climatology (14)** **Elevation (33)** **Environment (20)**

Farming (9) **Geoscientific (3)** **Health (10)** **Imagery (81)**

Recently Viewed Data

ADEQ Water Base Layer
Downloadable Data!

2008 Impaired Streams 303 d list in Category 5
Downloadable Data!

Data Categories

Select a category

Search News

Enter keywords Search

Recent Posts

- 2015 NASA Senior Review March 24, 2015
- 2015 Arkansas GIS Users Forum Spring Meeting March 5, 2015
- Municipal Boundary Update: New Incorporation- City of Southside March

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The Project - GeoStor

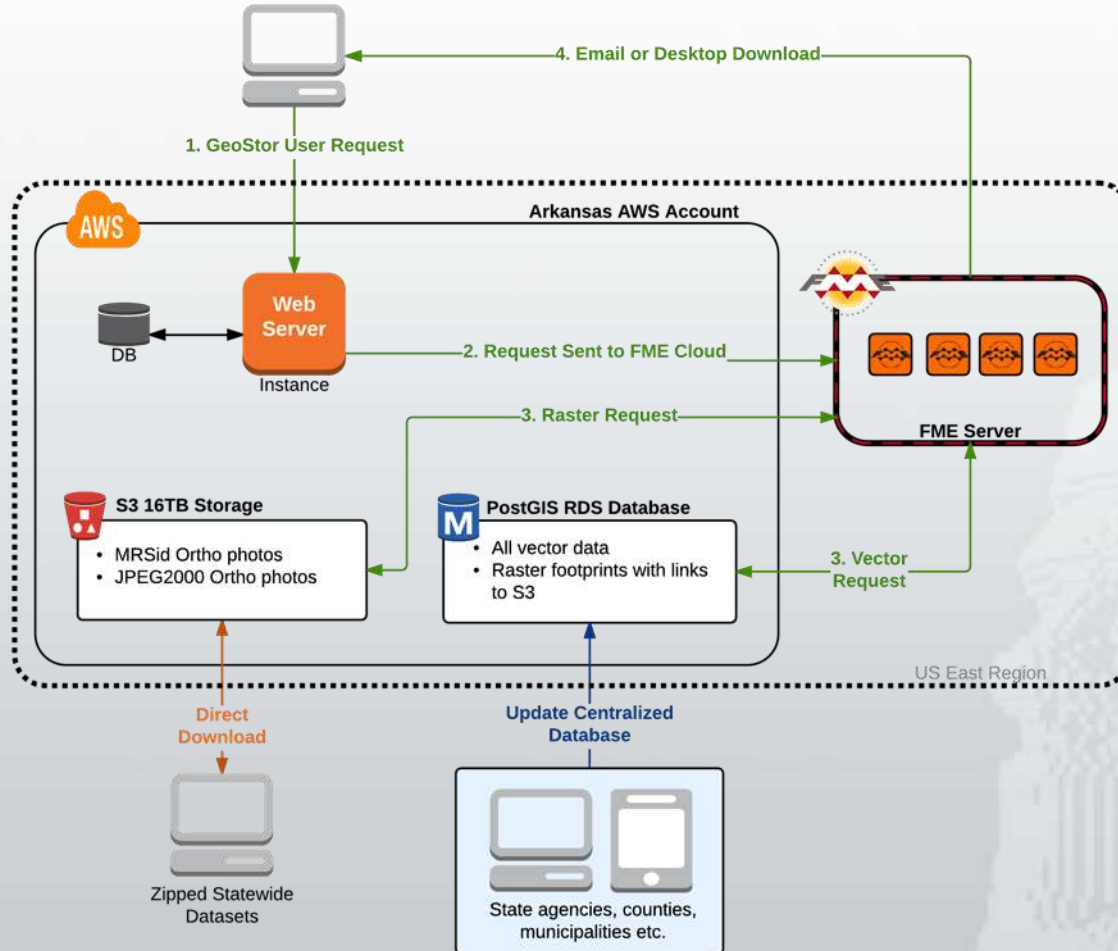


Improve the usability and migrate to the cloud.

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

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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

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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		

Intangible 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

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UAV-Based LiDAR Data Collection & Analysis

FINLAND

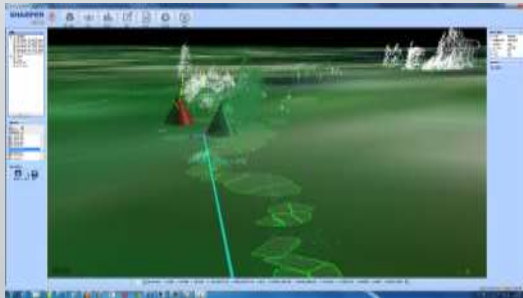
Ville Koivuranta

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



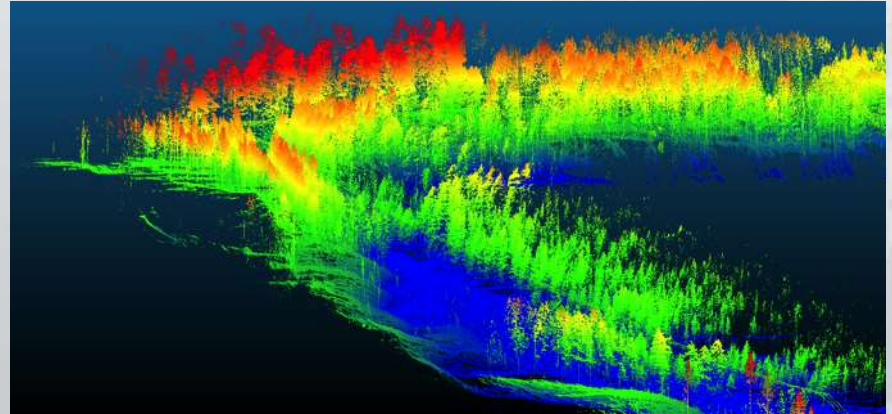
- Sharper Shape UAV's are capable Beyond Visual Line Of Sight flights with up to 1 hour flight time and up to 8 kg payload.
- Sharper Shapes UAV's are equipped with high performance LiDAR, High resolution cameras, onboard computer and storage unit and high precision IMU (Inertial Measurement Unit)



FME in Route Planning



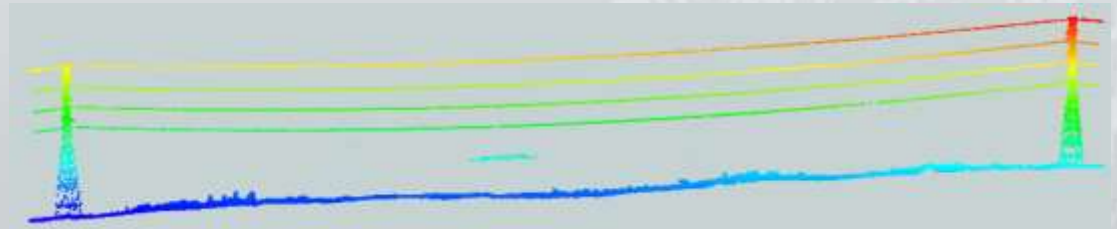
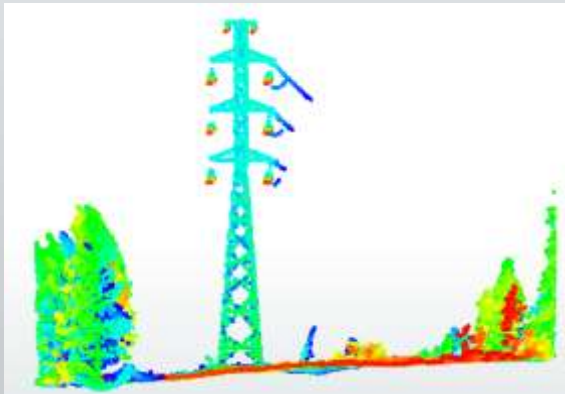
- Economically optimized flight routes are created using FME.
- The elevation information is sourced from existing point cloud or from national DTM.
- 3D shape polylines are uploaded to autopilot and the UAV follows the pre programmed flight line.



Customer Data Integration



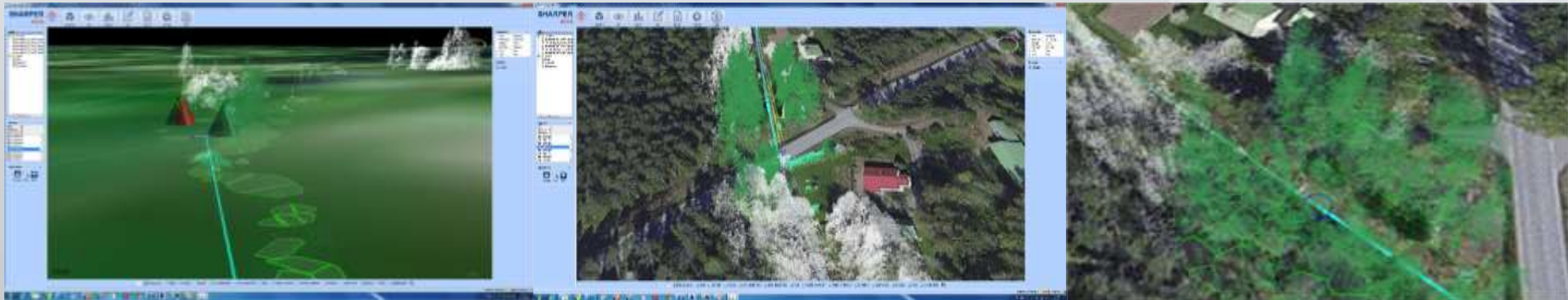
- FME is perfect to fulfill customer specific small needs.
- For example one customer wanted to be able to create cross-section images from network and it was done using FME
- Also all data conversions from customer NIS system to our systems are done with FME.
- FME is used to create PDF-map of the vegetation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



Work Type
Ground clearance

Filtering

Maintenance Area	Length	RAH 2014	Maintenance Cost 2014	Efficiency 2014	RAH 2015
PUN-J04_PUN_Sel_Vormal	95.72	130000	130000	118.9	130000
DVA-J07_Millemars_3RHS_mukatz	19.32	121000	121000	166.9	122010
LJ-J09_Hattusars	165.82	111000	111000	88.9	112110
JKA-J12_Vaakas	77.48	110000	110000	86	111100
RW-LH-Nopars	35.15	108000	108000	87.2	108000
DVA-J05_Konansa_3RHS_mukatz	61.07	90000	90000	85.4	90990
PLA-J07_Vaakas	65.01	89000	89000	85.7	89800
PA-J02_Hambard_Juugivi	65.16	89000	89000	82.7	89800
PLA-DVA-Nopars	65.56	81000	81000	91.3	91910
TSD-J11_Pajoni	58.75	83000	83000	74.7	83800
HEJ-D14_Makata	58.34	81000	81000	72.8	81910
YED-J11_Vitjar	55.93	77000	77000	85.3	77770
LJP-J12_Ruukari	51.99	77000	77000	86.3	77770
KDL-J11_Purvatals	51.80	76000	76000	86.4	76780
ENO-J08_Mitri	54.44	75000	75000	87.3	75700
KTE-J05_Juunka_RHS_Silene	46.89	74000	74000	86.8	74140
HW-J07_Viparsat_Konansa	38.81	72000	72000	84.8	72720
PLA-J05_Hattusars	153.74	71000	71000	83.9	71710
VSK-J06_Mitjarjivi_Silja	67.30	70000	70000	82	70700
KDL-J12_Huttusars	36.70	70000	70000	82	70700
KTE-J07_Seljar_Silene	44.84	70000	70000	82	70700
HW-J02_Kuhansa	32.31	70000	70000	83	70700
POJ-J10_Ruukari	38.39	69000	69000	82.1	69000
TSD-J10_Avaks	31.70	68000	68000	91.2	68600
JKA-J11_Kajoni	58.12	67000	67000	86.3	67670
LJP-J10_Ottasari	38.32	66000	66000	85.4	66660
VVA-J05_Roa	38.81	65000	65000	86.5	66600
VVA-J04_Ruukari	41.22	64000	64000	87.8	64640
MVA-J12_Pavak_Silene	35.38	64000	64000	87.8	64640
PM-J08_Havoni	68.67	64000	64000	87.6	64640
POJ-J11_Sela_Honansata	42.24	64000	64000	87.6	64640
NUR-J06_Makari	67.80	62000	62000	85.8	62620
DVA-J03_Nurjivi	65.11	61000	61000	84.9	61810

Work order summary

Year: 2015

PUN-J04_PUN_Sel_Vormal

Order: P03

Work type: Ground clearance

Issue count: 133

Length km: 95.72

Reduced RAH: 130000

Efficiency: 118.90

Cost: 130000

Buttons: Refresh, Back

Handle the areas in the priority order. Proceed with planning.



**Leveraging
FME Cloud:
Near Real Time
Global Web Map
Tile Generation for
Meteorology**

CANADA
Pelmorex

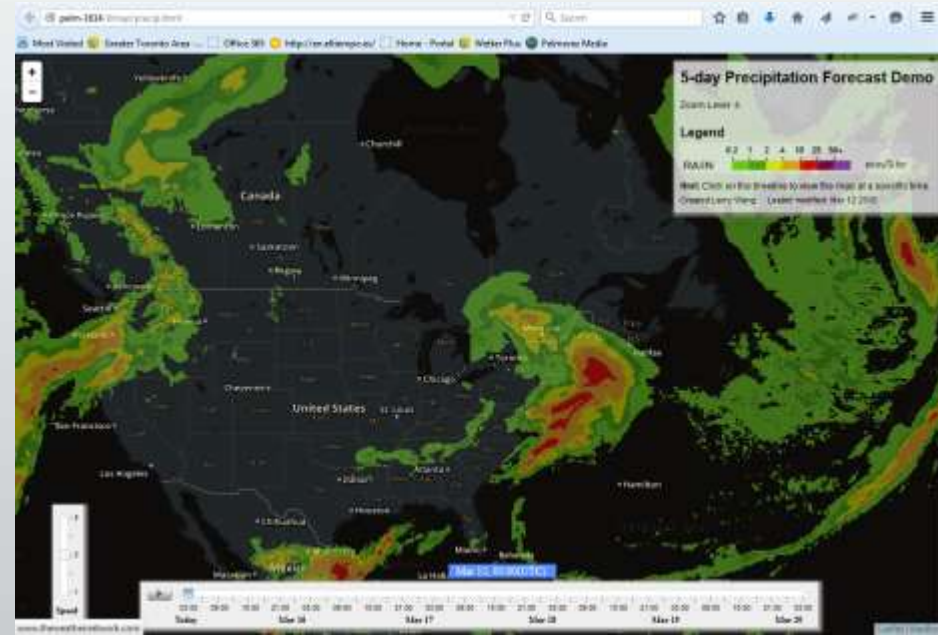


The Project



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.

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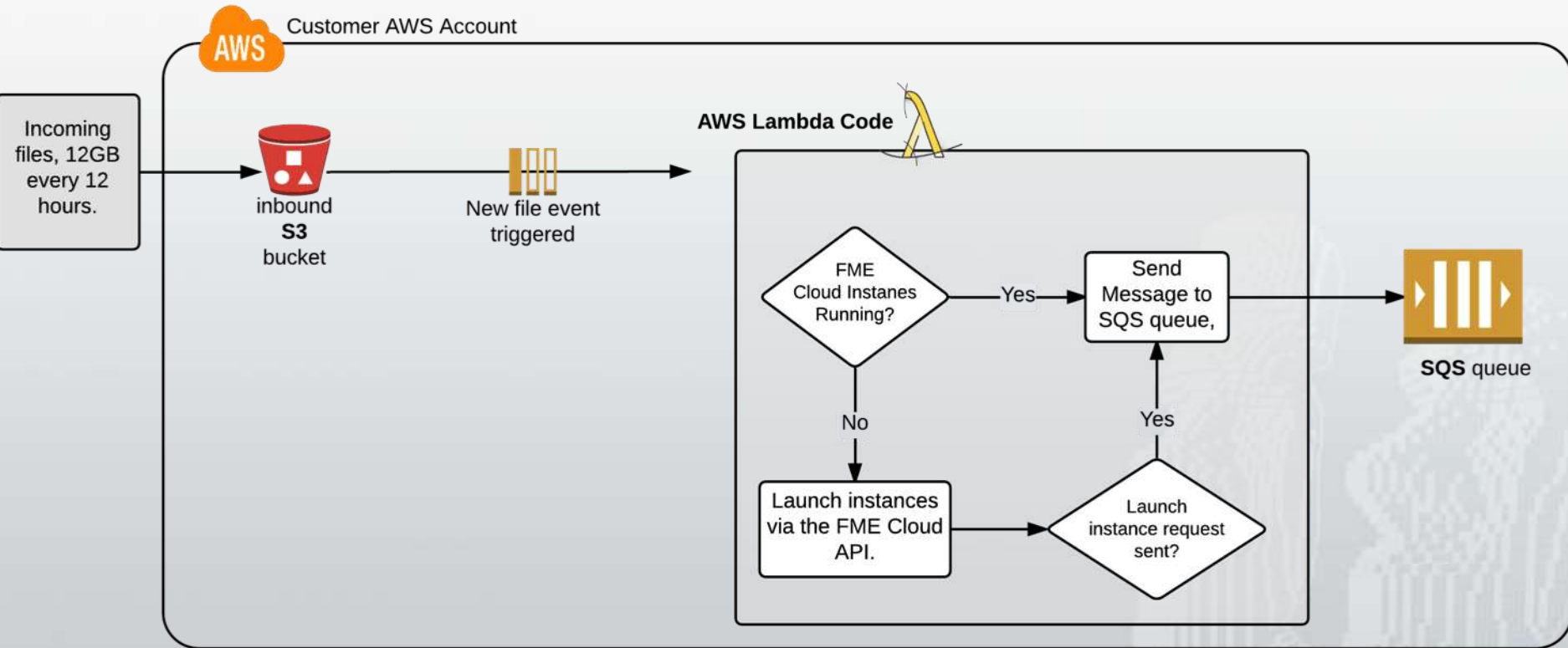
Solution



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

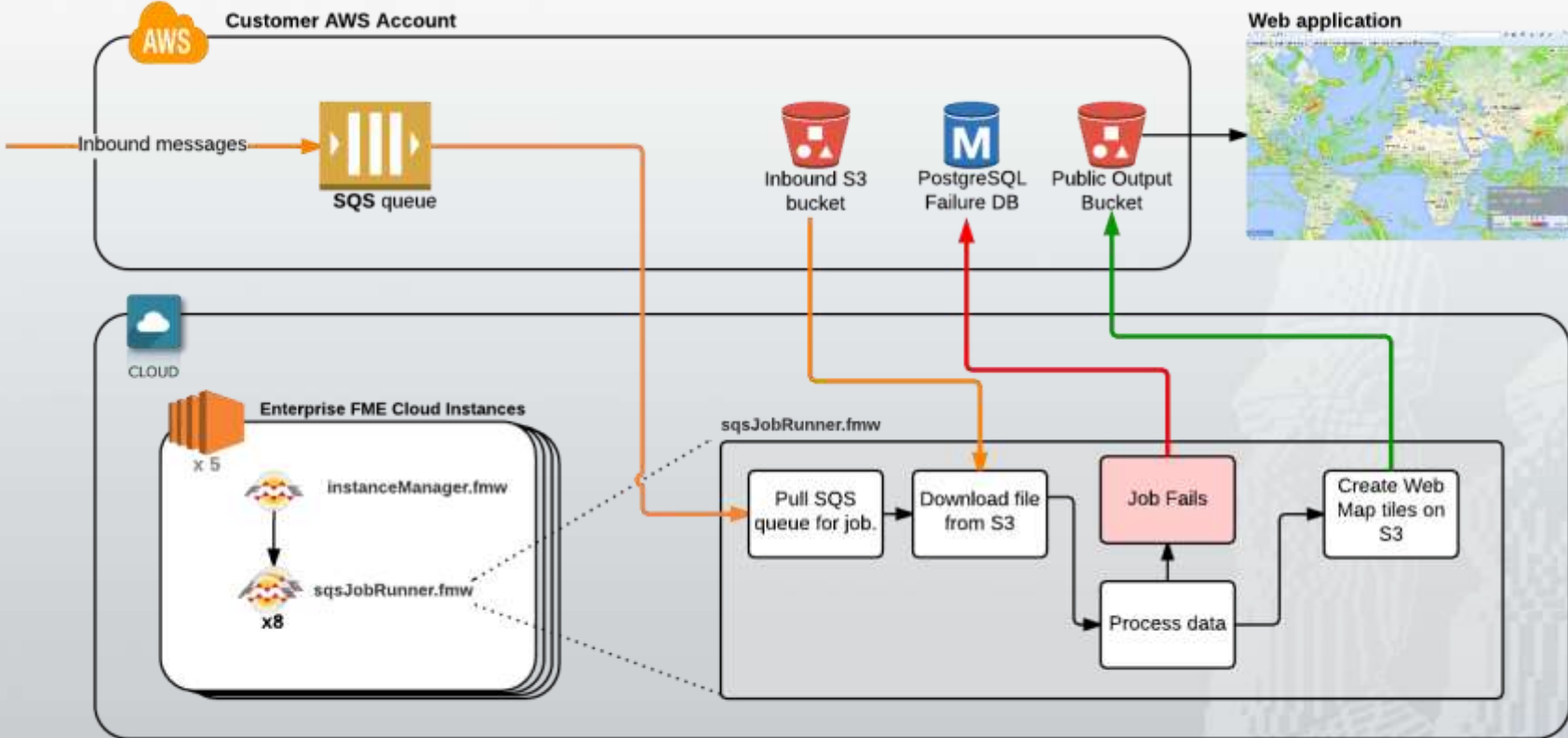
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Solution – Dynamically Provision Capacity



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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.

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BIM to GIS at Mount Vernon

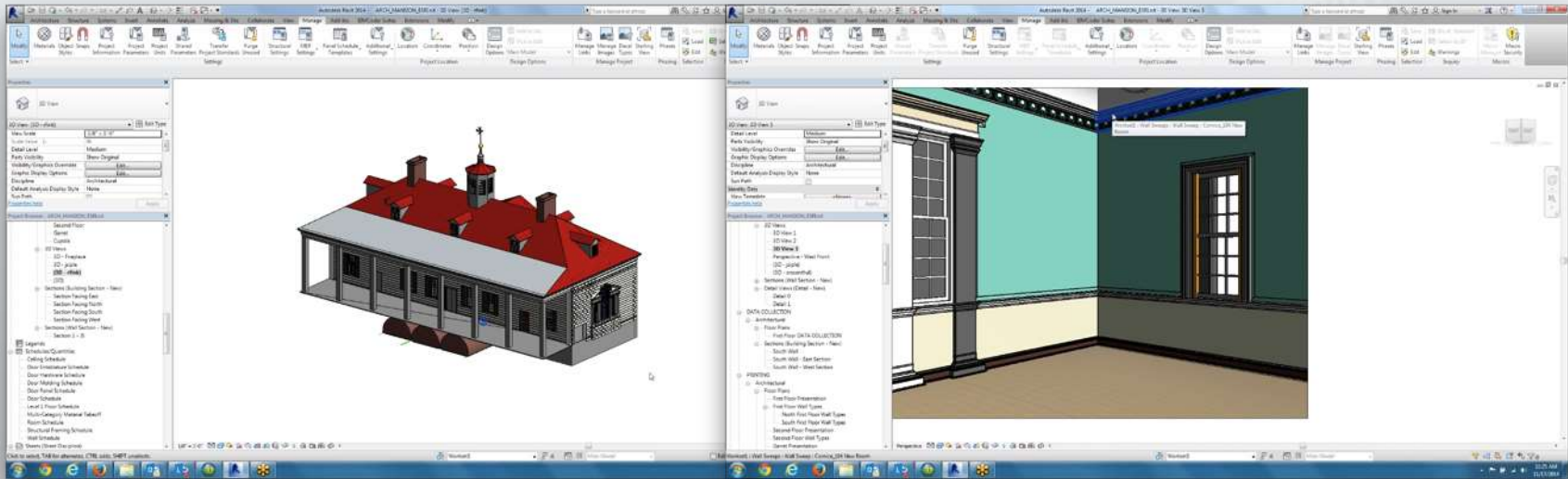
VIRGINIA, USA

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

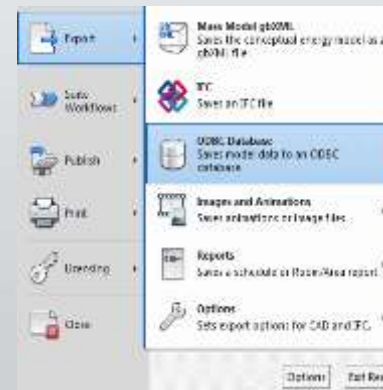


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BIM to GIS via Data Interop

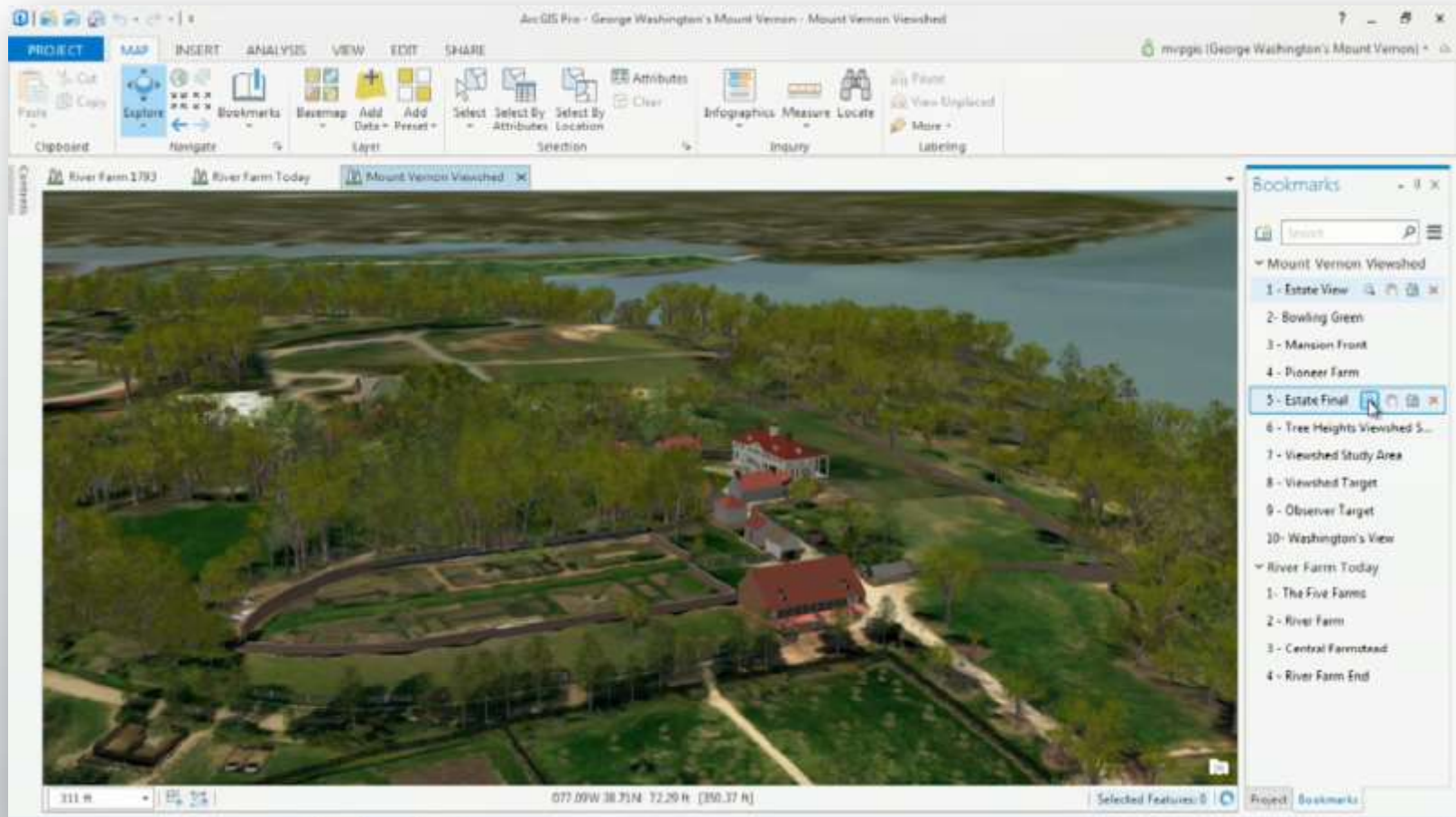


- Revit: Add coordinates and rotation from project north to true north
- Export to Revit Archive(.rvz) with FME Revit Exporter, attributes to spreadsheet
- Import to ArcGIS with Data Interoperability Extension (FME)
- Reconnect attribution



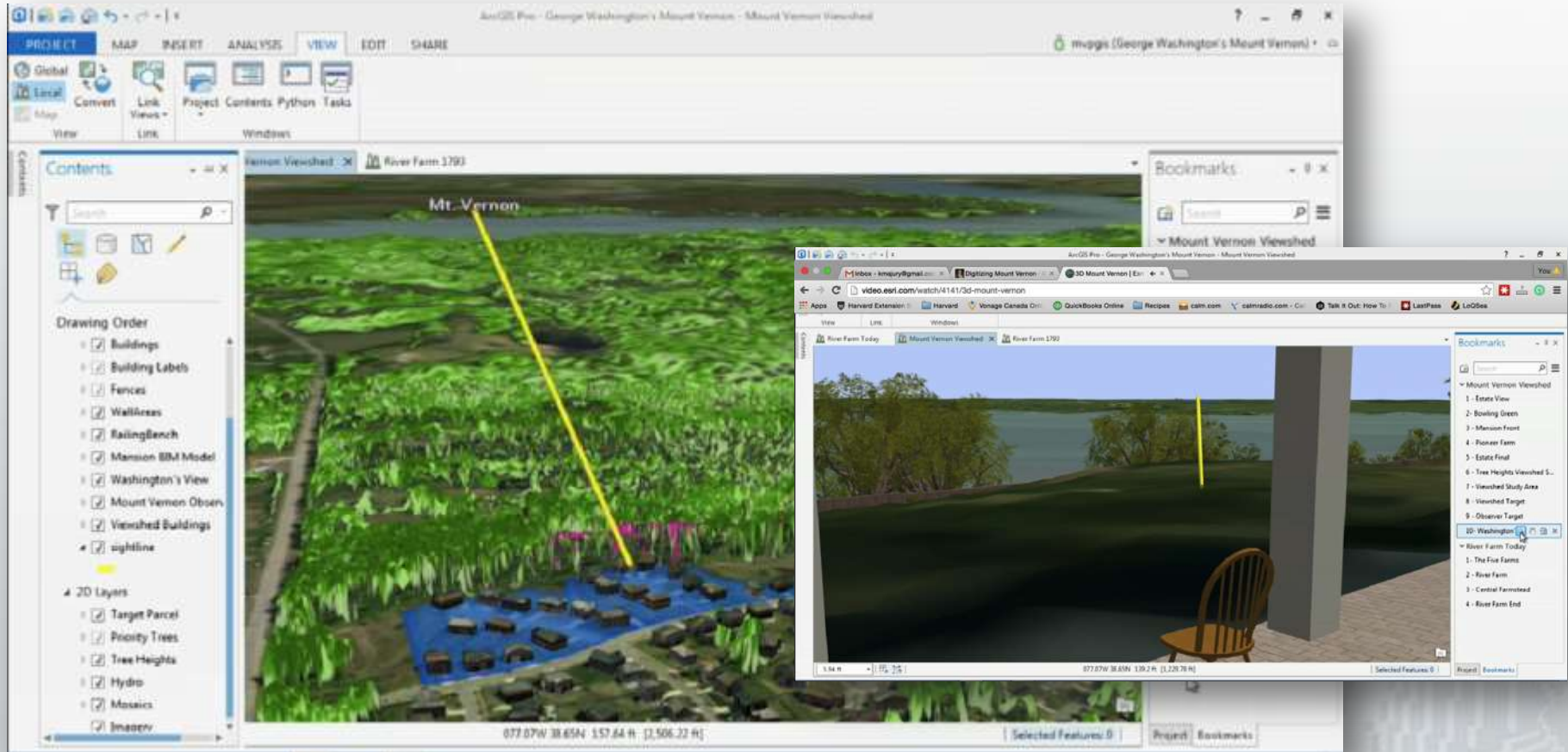
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A Blended World



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Viewshed Analysis

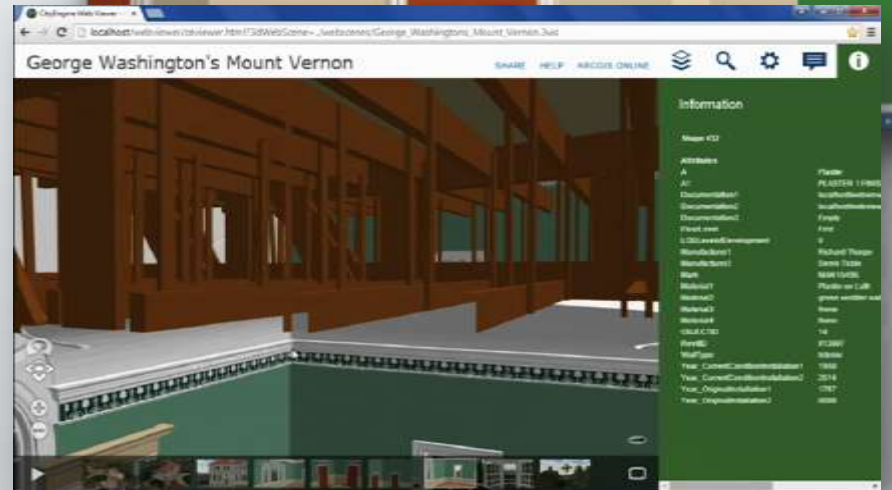


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Stakeholder Access to Information



- 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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Information

Shape 432

Attributes

A	Plaster
A1	PLASTER 1 FINIS
Documentation1	localhost/webview
Documentation2	localhost/webview
Documentation3	Empty
FloorLevel	First
LODLevelofDevelopment	0
Manufacturer1	Richard Tharpe
Manufacturer2	Derek Tickle
Mark	MAN10496
Material1	Plaster on Lath
Material2	green verditer wal
Material3	None
Material4	None
OBJECTID	14
RevitID	913697
WallType	Interior
Year_CurrentConditionInstallation1	1950
Year_CurrentConditionInstallation2	2014
Year_OriginalInstallation1	1787
Year_OriginalInstallation2	0000

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



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



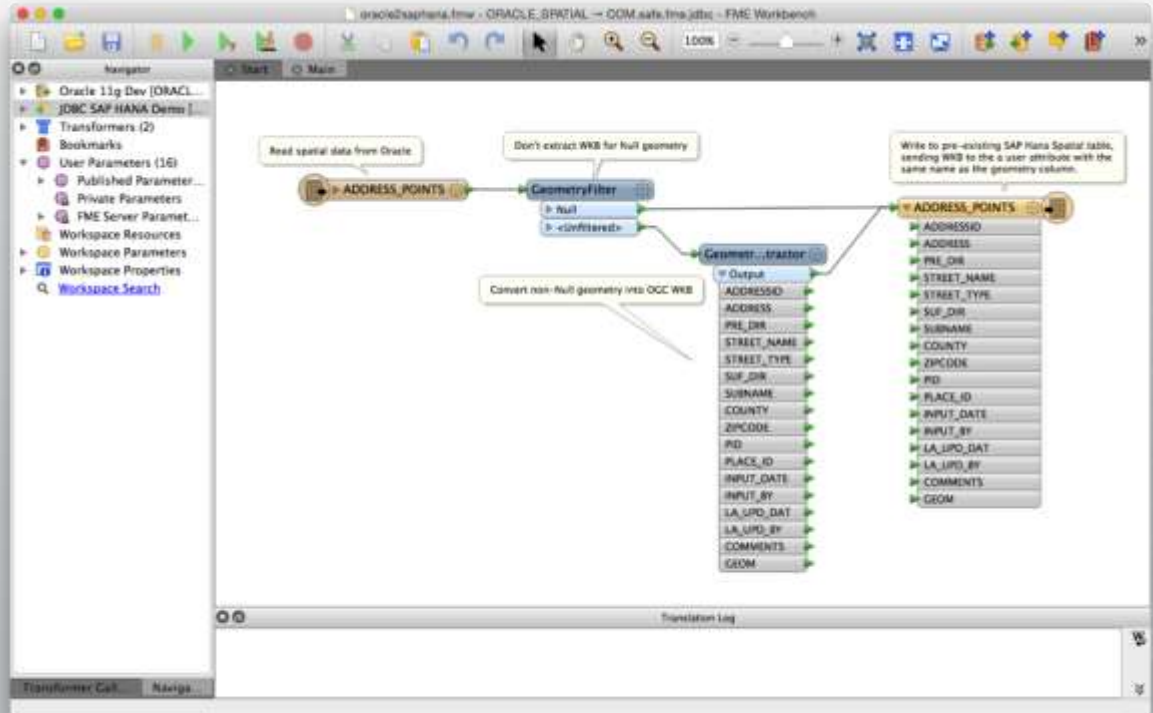
- Alllander wants repeatable workflows to move data from Oracle Spatial/Esri Geo Data warehouse to SAP HANA for advanced SAP/GEO BI analysis
- Departments aligning, GIS has FME already
- FME preferred, complex spatial handling
- Will FME do the job?

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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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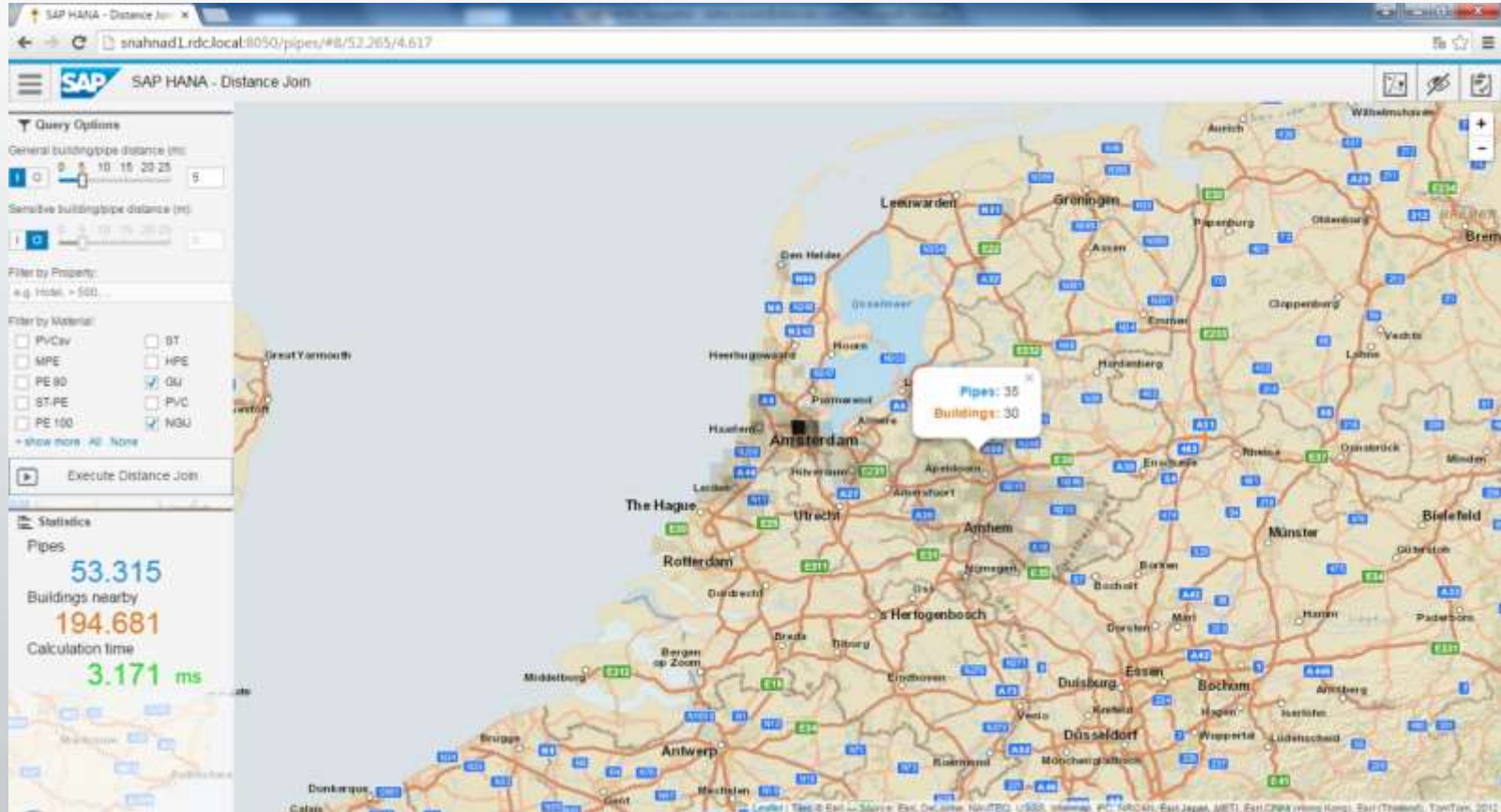
How did FME do?



- 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

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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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