

OSIsoft Cloud Services

Part 3 of 4

- Building Calculations -

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Extend the Platform and Add New Offerings loud Connect Display Sharing Partners App. Data Sharing **More Commercial** Offerings Data Data Data Calculations Data Data Visualization, Queuing Sharing Acquisition Storage Cloud Services Platform







Agenda

- What are Calculations in OSIsoft Cloud Services?
- How do we keep them secure?
- How can they be built?
- Building Calculations using the OCS Portal
 - Live Demo
- Future



What are Calculations in OSIsoft Cloud Services?

- Hosted with the Data Store
 - Lower latency access
- Custom JavaScript Logic
- Scheduling Support
- Reusable via Templates
- No Data Access Pattern Assumptions

```
Well RoP Script
         var date = Date.fromTimeExpression("2015-11-17T14:21:14.000Z");
          try
              var values = await qi.getWindowValuesAsync(wellStream.Id,
                   new QiCompoundIndex(3136.999, date),
                   new QiCompoundIndex(3140, date), QiBoundaryType.ExactOrCalculated,
                   "CreationDate eq 2015-11-17T14:21:59.000Z");
                   console.log(JSON.stringify(values));
 14
         catch(error)
           Audit Trail
Output
2017-03-03 16:44:13 (MST) Starting Custom Test...
2017-03-03 16:44:13 (MST) Script(s) compiled successfully.
2017-03-03 16:44:13 (MST) [{"DEPTH":3136,999."CreationDate":"2015-11-17T14:21:59,000Z"}.
 "ROP5":140.8134918213,"DEPTH":3137.002,"CreationDate":"2015-11-17T14:21:59.000Z"},
{"ROP5":143.0941162109,"DEPTH":3137.154,"CreationDate":"2015-11-17T14:21:59.000Z"},
{"ROP5":148.313583374."DEPTH":3137.306."CreationDate":"2015-11-17T14:21:59.000Z"}
{"ROP5":155.0522460938,"DEPTH":3137.459,"CreationDate":"2015-11-17T14:21:59.000Z"}
{"ROP5":161.3931274414,"DEPTH":3137.611,"CreationDate":"2015-11-17T14:21:59.000Z"}
{"ROP5":169.4790649414."DEPTH":3137.764."CreationDate":"2015-11-17T14:21:59.000Z"}.
{"ROP5":179.8722991943,"DEPTH":3137.916,"CreationDate":"2015-11-17T14:21:59.000Z"}
{"DEPTH":3138.001,"CreationDate":"2015-11-17T14:21:59.000Z"},
 {"ROP5":192.0098571777."DEPTH":3138.068."CreationDate":"2015-11-17T14:21:59.000Z"}
        :205.2330322266."DEPTH":3138.221."CreationDate":"2015-11-17T14:21:59.000Z")
```





Securing Calculations in OSIsoft Cloud Services

- Process Isolation
- Bare JavaScript Virtual Machine
 - No WebSockets, DOM, XMLHttp, etc.
 - Only Access Data Store via Read / Write Data RPCs
- Automatic Termination if Time Slice is Exceeded

Securing Calculations in OSIsoft Cloud Services

- Capped Memory Consumption
- Defective Calculations Pulled from Scheduling Automatically
- OSIsoft Cannot See Your Intellectual Property



Building Calculations

- OSIsoft Cloud Services Portal
 - Uses REST API
 - Uses No Undocumented APIs
- .NET Client Libraries
- REST API



Fictitious Scenario for OSIsoft Cloud Services (OCS)

The Story of Unified Petroleum's Digital Transformation

Desire to improve safety and reduce cost

- Optimize drilling
- Share across regions
- Discourage isolation
- Smooth interaction w/ latest technologies
- Available everywhere

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Do not want to maintain an IT staff

Fictitious Scenario for OSIsoft Cloud Services (OCS)

- Data source
 - Wellsite Information Transfer Standard Markup Language (WITSML)

"Standard" for sharing well data in the petroleum industry.

- Unified Petroleum is actively drilling in...
 - Gulf of Mexico
 - North Sea
 - Lookout, Oklahoma



Demo – Building Calculations in the OCS Portal

Unified Petroleum

- Drilling Data Streams Include
 - RoP Rate of Penetration
 - Depth Depth of Well
 - RPM Rotations per Minute
- Calculation Template
 - Use Ratio of RoP and RPM to determine drill bit wear and tear.



Demo







Future

- Additional Languages Support
 - Investigating: C# Script, R, and Python
- Additional Schedule Types
- Security Enhancements (More Sandboxing)
- Community



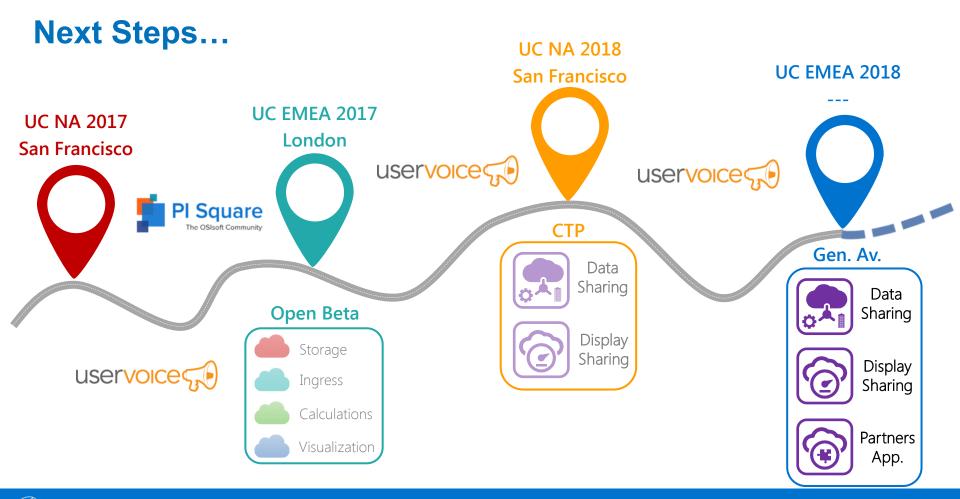


Future

- Adapters to Provide Secure Access to:
 - Twilio
 - SendGrid
 - Azure: Machine Learning, Functions, Logic Apps, etc.
- You Tell Us
 - User Voice



#OSIsoftUC









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감사합니다

Danke

谢谢

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado







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