

# Walk-in Slide: AU 2014 Social Media Feed

1. Click on the link below, this will open your web browser

<http://aucache.autodesk.com/social/visualization.html>

2. Use “Extended Display” to project the website on screen if you plan to work on your computer. Use “Duplicate” to display same image on screen and computer.

# AutoCAD Core Engine Via Http

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# Agenda

- Introducing AutoCAD I/O Beta
- Overview of APIs
- Demo
- Behind the scenes
- Call to Action

# Introducing AutoCAD I/O Beta

- Live on <https://developer.autodesk.com> since 10/24/2014
- Open to everyone and free
  - Several partners already actively use it
  - Sign-up via <https://developer.autodesk.com> and we will contact you

# Goal of the service

- Provide server-side DWG processing
- Run AutoCAD scripts in the 'cloud'



# Non goals

- ACES is **not** a service for end users.
  - It is for developers like you.
- ACES is **not** for interactive viewing/editing of DWGs.
  - AutoCAD 360 Web and Mobile offers that.
- ACES is **not** a server.
  - You cannot install it on your machines.



# Overview of the APIs

- OData conventions for URL and payloads
- 3 Key abstractions:
  - WorkItem
  - Activity
  - AppPackage
- Client side code can be written in any language that can make HTTP requests
  - .NET library is available

# Function analogy

Think of an Activity as a function and  
WorkItem as a call to that function.

```
void activity(string i1, string i2, out string o1, out string o2)
{
    //instructions
    var temp = i1 + i2;
    o1 = temp.ToUpper();
    o2 = temp.ToLower();
}
```

```
void work()
{
    //work item 1
    string u1, l1;
    activity("some", "input", out u1, out l1);
    //work item 2
    string u2, l2;
    activity("more", "input", out u2, out l2);
}
```



# WorkItem

- You create a work item by setting:
  - Associated 'Activity'
  - Input arguments (URLs)
  - Output arguments (URLs)
- You may track the work item:
  - by polling 'Status'
  - by providing callback URL

# Demo

<https://github.com/Developer-Autodesk/workflow-simplest-autocad.io>

# Activity

- Declaration of input and output parameters
  - Satisfied by URL arguments
- We plan provide a library of activities
  - Creating an activity requires AutoCAD expertise
- Activities can be shared or be private
  - You can create activities for others

# AppPackage

- Allows you to upload your .NET/C++ code
- CRX applications
- DBX applications (Object Enablers)
- App must be packaged in the autoloader format
- Your app must run on top of AcCoreConsole.exe (AutoCAD 2015)
  - You can test locally

# Demo

<https://github.com/Developer-Autodesk/workflow-custom-activity-with-apppackage-autocad.io>

# External reference handling

DWG files can reference other files (dwg, image etc.)

- Client must supply all references
  - Etransmit package
  - Inline 'File' objects in the input argument (JSON that describes the URLs and their local name)
  - A360 reference service
    - when input is in an A360 URL



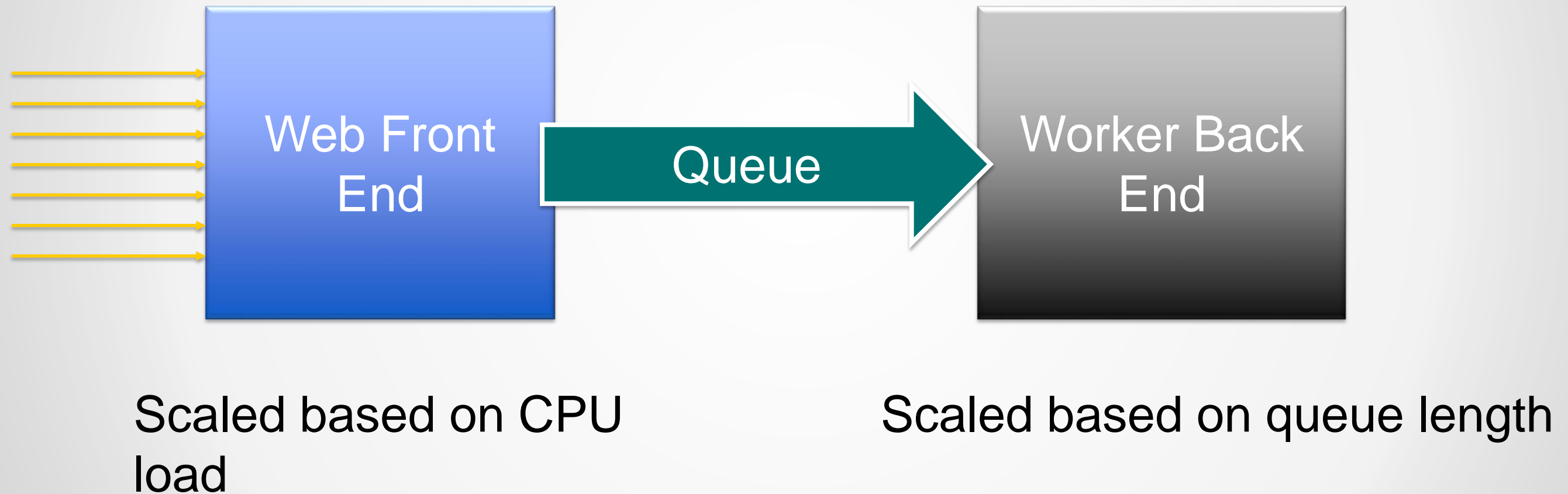
# Demo

<https://github.com/Developer-Autodesk/workflow-input-variations-autocad.io>

# Behind the scenes

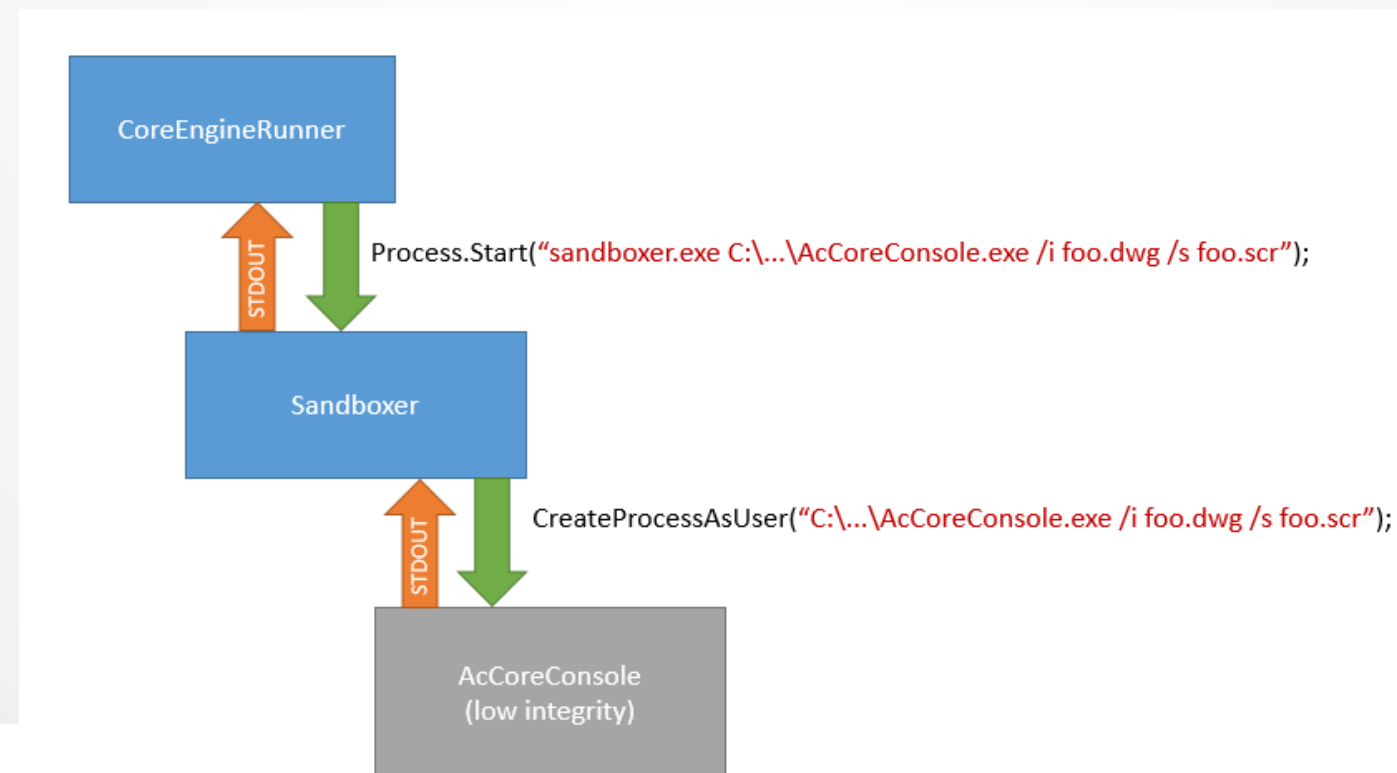
1. Worker receives WorkItem via a queue
2. Downloads input arguments
  - HTTP GET
3. Run AcCoreConsole.exe in sandbox
4. Uploads result to output arguments
  - HTTP POST/PUT

# Processing Pipeline



# Sandboxing

- Takes advantage of Windows Integrity Levels
- Write access to
  - %USER PROFILE%\AppData\LocalLow
  - HKEY\_CURRENT\_USER\Software\AppDataLow
- All network i/o is blocked from AcCoreConsole.exe



# Call to Action

- Visit <https://developer.autodesk.com>
- Submit your access request
- Ask questions and provide suggestions on the forum:
- <http://forums.autodesk.com/t5/autocad-i-o/bd-p/105>
- Browse the samples at
- <https://github.com/Developer-Autodesk/AUTOCAD.IO>

# Questions?



# Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2015 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time









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