House Party

Continuous delivery of hundreds of services enterprise wide

Aaron L. Judy, GISP
David Olson, MS
Designed and Built by

Wetware – wet*ware (‘wet, wer), The humans that assembled me.

Aaron L. Judy, GISP

- GIS Software Architect responsible for high-end technical visioning and systems architecture of the GIS environment.
- Certified Geographic Information Systems Professional (GISP)
- Esri Certified Enterprise Geodata Management Professional
- Certified Scrum Master
- 2016 Recipient of the Esri Special Achievement in GIS Award
- 2015 Recipient of the AACo Summit Award for Innovation in Information Technology
- 2011 Recipient of the Esri Special Achievement in GIS Award

David Olson, GISP, MSGIS

- Senior GIS Programmer specializing in the design and development of custom GIS applications for web and mobile devices.
- Masters degree in GIS Technology
- 2016 Recipient of the Esri Special Achievement in GIS Award
- 2014 Recipient of the Esri UC User App Award for Mobile GIS
About Us
Maricopa County Office of Enterprise Technology, Office of the Geographic Information Officer

• Fun facts
  - Maricopa County is the fourth largest county by population
  - Phoenix (county seat) is the fifth largest city by population
  - Area of 9,224 Sq. Mi.
  - Larger than 17 states

• GIS fun facts
  - ~115+ Servers in GIS
  - Multiple clustered ArcGIS Server sites
  - Multiple federated Portal deployments
  - 100% Virtualized Environment (100% GIS Virtualized Environment)
  - GIS Team of 18 FTE
  - Supporting ~50 County agencies with GIS support (data, imagery, services, software and hardware)
  - Supporting services for ~24 regional government agencies (data, imagery and services)
  - Supporting citizens directly (data, applications, and services)
What is House Party?

In the simplest terms

House Party is a continuous delivery solution for complex GIS environments.

Continuous delivery (CD) is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time. It aims at building, testing, and releasing software faster and more frequently. The approach helps reduce the cost, time, and risk of delivering changes by allowing for more incremental updates to applications in production. A straightforward and repeatable deployment process is important for continuous delivery. – Wikipedia
I want to be Agile

Ok

DevOps too?

Yes

Continuous delivery?

Yes

24/7 up-time too

Including patch days

Ok
Baby Photos
House Party began as a simple Python script...
What can House Party do?

• Clone any existing service from any node to any other.
  - Work dynamically with services instead of MXDs and data.

• Single line search of any service anywhere in your infrastructure.
  - When you have a large infrastructure and high number of services, this becomes a really big deal.

• Allows authorized users to continue publishing content to development sandboxes using whatever workflow they prefer.
  - Users do not have to learn a new publishing process, House Party carries their service forward.

• Facilitates promotion of content from development machines to staging, then to internal or external production.
  - Users request their service to be promoted, system administrators receive notification, review their service request and automatically carry out the promotion.
  - Email and web based automation facilitates authorization for each level of promotion.

• Provides centralized “first responder” documentation including application configuration, services required, impacted user groups, URL and a basic screenshot.
  - Help desk team, on call staff, non-technical GIS team members.
  - Direct integrated performance information from our monitoring solutions.

• Capable of auto deployment on check in.

• Move traffic between clustered application stacks.
What does this house look like?

Where does House Party live and what does it integrate with?

Services

ArcGIS for Server

Source Control

Build Automation

Performance Monitoring

Team ChatOps

Jarvis AI

ChatOps Automation

House Party

Service Automation

Visual Studio

Team Foundation Server

Team ChatOps
By 2018, we hope to containerize as much software as possible in an on premise/cloud hybrid infrastructure. The intention is to be cloud agnostic and agile enough to move workloads from local to most any cloud automatically.
What’s behind the curtain?
What technologies are we using?

- Python
- SQL
- ArcGIS REST API
- PHP
- Visual Studio Team Foundation Server
- HTML
- CSS
- JS
Continuous Delivery of GIS Services

- All production services need to be treated as a delivered application with its own life cycle management
  - At the end of the day (Service == Software), you are in the software business
    - You are delivering services to end users and dependent software
  - If a module is used by more than one or more other pieces of software and/or can be updated independently, it should be managed as a single solution with its own life cycle.
    - TFS project per service
    - TFS project per module/application/framework/script
    - Edit it once, let the system distribute it

- Folder/File structure standards per tier “dev, stage, prod internal, prod external” (ArcGIS Server service directories, TFS projects and project file structures, file servers)

- Independent designated storage per tier “dev, stage, prod internal, prod external”

- Redundant service endpoints facing the public
  - Complex load balancing rules controlled by automation (f5 + TFS + PowerShell)
    - Check the health checks of ArcGIS Server while you’re checking if the web server is alive
    - Define a custom up or down flag

- Monitor your GIS application performance
House Party Demo

Live software demo
Questions?
Comments?
Thoughts?
Emojis?
Ponderings?
Suspicions?
THANK YOU

Connect with Aaron:
Email: judya@mail.maricopa.gov
Website: http://theneverworks.com/
LinkedIn: https://www.linkedin.com/in/aaronjudy

Connect with David:
Email: davidolson@mail.maricopa.gov