

# Automation In Practice – It's Not What You Think It Is

CS/SE 6367: Software Testing, Validation & Verification

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# Who Is This Guy?

- Paul Grizzaffi
- Automation Program Architect & Manager
- MedAssets – a healthcare performance improvement company
- “Quality Accelerator” / “Software Pediatrician”
- Career focused on automation
- Community Advisory Board for Software Test Professionals (STP)



paul\_grizzaffi@yahoo.com



<http://www.linkedin.com/in/paulgrizzaffi>



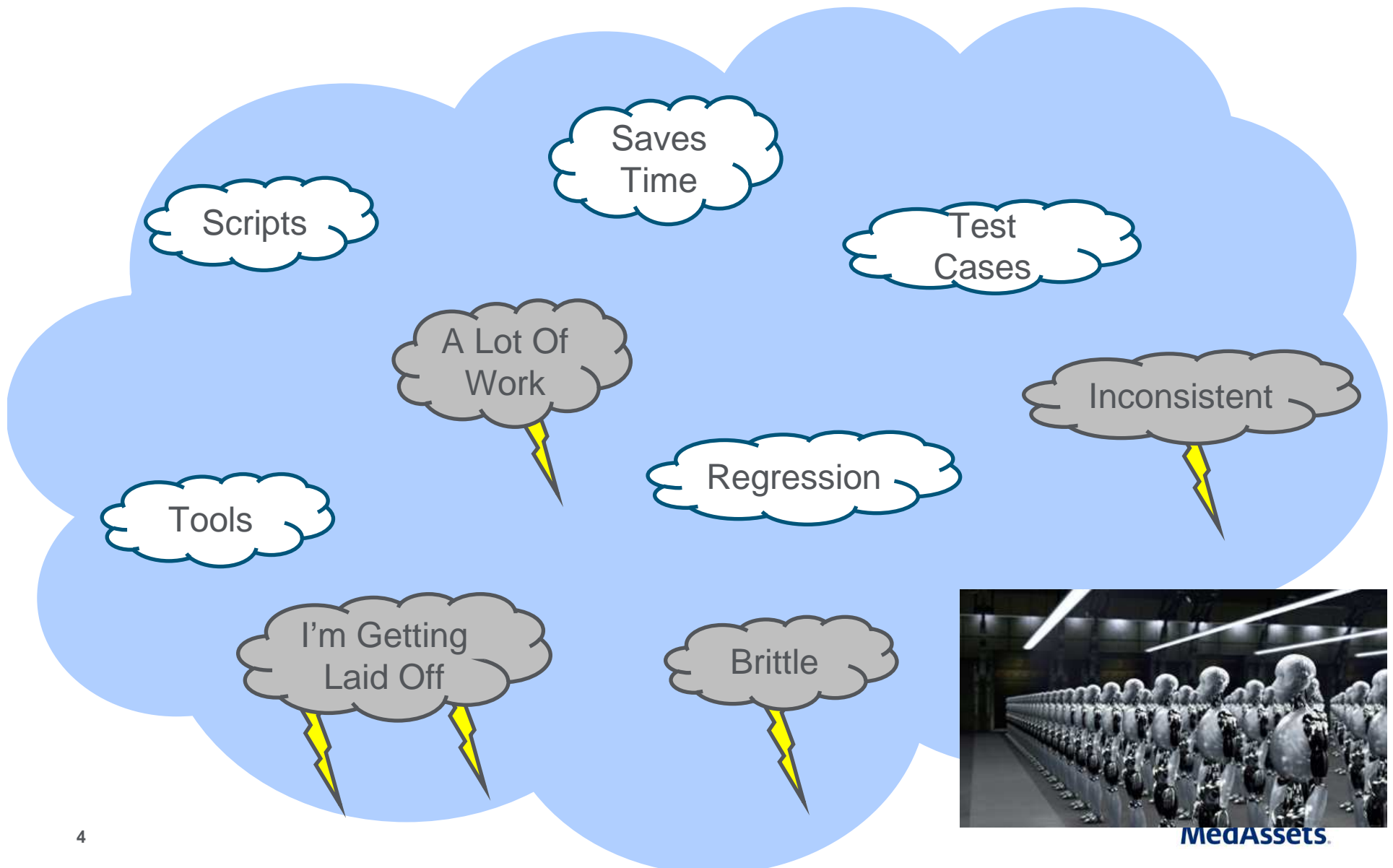
@pgrizzaffi



## What Comes To Mind?



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**AUTOMATION**

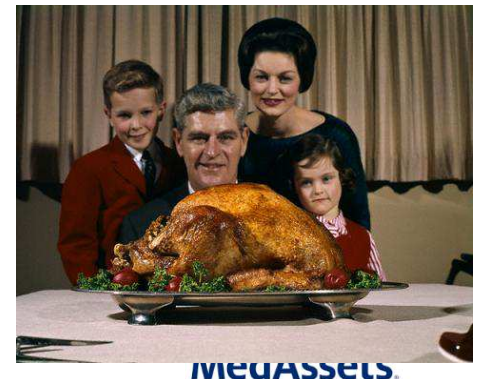
**I DO NOT THINK IT MEANS WHAT YOU THINK IT  
MEANS**

# Traditions Can Be Important



# Traditions Can Be Important

- Traditional automation
  - Detect behavior changes
  - Reduce effort on smoke and regression
  - Earlier execution, earlier alerts
  - Scheduled execution
- This is what most companies call automation
- MedAssets has this and it's valuable
- Is there something else?



## What If We Think Differently?





# What If We Think Differently?

- “Let’s help the humans”
- What makes us more efficient or more effective?
- What’s valuable?
- What hurts?
- Instead of *automation*, do we need *assistance*?



# Automation Assist

- Umbrella term for non-traditional automation
  - “Words mean things” – Patrick Amaku
  - Changing meanings is difficult
  - New vocabulary for new concepts
- Things that increase the value of manual effort
  - “Off label” tool usage
  - New tools, applications, scripts
  - Tools not traditionally thought of as automation

***Lets Look At Some Examples***



# Movin' On Up



# MIRV



# MIRV

- The premise
  - Data center migration for a large, complex product
  - Aggressive dates, limited testing time, limited staff
  - Experience: system will work or “be egregiously broken”
- The solution
  - Scripts based on existing tool to find egregious issues
  - Execute against multiple facilities simultaneously
  - Running on repurposed laptops
  - TestComplete scripts: several weeks of effort
- Why that solution?
  - Quick, shallow checks can maximize humans’ value
  - Existing tool reuse reduces effort
  - 7 – 12 business critical incidents prevented



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# High Volume Automated Testing



# High Volume Automated Testing

“...a family of testing techniques that enable the tester to create, run and evaluate the results of arbitrarily many tests”

Workshop on Teaching Software Testing (WTST) 2013



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# High Volume Automated Testing

- Aka HiVAT
- Research from Florida Institute of Technology (FIT)
- Dr. Cem Kaner, J.D., Ph.D.
- Andy Tinkham
- <http://context-driven-testing.com/?p=69>
- Interesting facets for MedAssets
  - Many executions
  - Random execution
  - Results vetted by humans



**MedAssets**



# Scud



# Scud

- The premise
  - Product is large, complex, aging
  - Not feasible to enumerate and follow all paths
- The solution
  - Random menu clicker – “Scud”
  - Looking for things that “don’t seem right”
  - Selenium-based Python script: 32 hours of effort
  - Found four issues in the first week of use



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## Scud (cont.)

- Why that solution?
  - Value shown at GameStop
  - TestComplete not appropriate for this activity
  - Open source so broad license usage
  - Not competing for traditional automation licenses
  - Why a scripting language?
    - Learning curve is relatively shallow
    - Development is “faster”
    - Python expertise is available in our area



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# Data Regressor



# Data Regressor

- The premise
  - “Regression” testing between software versions
  - Volatile stock market data
  - Takes about 8 hours of effort
- The solution
  - Comparison tool
  - Connect to both servers and compare
  - Time to test reduced 1 minute
  - C++ program: “ROI”: 6 weeks
- Why that solution?
  - Traditional test scripts not appropriate
  - Existing API into the product
  - C++ primary development language
  - Product bug found during first execution



# Zero Remover



# Zero Remover

- The premise
  - Thousands of “golden files”
  - In some cases DB now returns NULL instead of 0.00
  - Manual effort estimate: 4 – 6 weeks
- The solution
  - A program to do the file transformation
  - C# program: 5 hours
- Why that solution?
  - Disposable
  - Windows/.Net shop
  - Easy to distribute executable



## Some Words About Effort

- Effort is a funny thing
- ROI can be difficult to calculate
- “Opportunity cost” can be easier and as useful
- Think about value



# Takeaways

- This is different
- Nothing wrong with scripting test cases, but that's an implementation
- This is software development
- Situational – the “knowns” help guide
- Coverage: direct or indirect
- Ecosystem: running, distributing
- Life span: disposable or long term



# Questions?



paul\_grizzaffi@yahoo.com



<http://www.linkedin.com/in/paulgrizzaffi>



@pgrizzaffi