

Prototyping For Fun and Profit

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What is a Prototype

- Functioning subset of the desired system
- Delivered quick, like first or second day
- Incrementally improved from there
- Eventually replaced

Why Prototype?

- Get the contract (Money)
- Lead the project (Money/career)
- Prevent stupidity (Money/career/happiness)

Isn't Prototyping Just For Entrapreneurs?

- ✓ Boom times, bust times
 - ✓ Opportunities, dangers
 - ✓ Smart decisions, dumb decisions
 - ✓ Abilities, deficiencies
 - ✓ Good luck, bad luck
 - ✓ 1099, W2
-
- Sooner or later, everyone must hustle
 - The early bird gets the worm

Who Should Prototype

- Hired gun developers
- Employee developers
- Admins

Admins? Really?

- You still need to be quick
- Perl
- Docker
- VMs
- Vagrant
- Config Managers
 - Mass deploy your prototype when ready
 - Puppet
 - Chef
 - Salt
 - Ansible
- But don't sacrifice security!

Prototype Philosophy

- Milestone and invoice early and often
- Do it quick, do it cheap
- Know your prototyping tools !!!!!
- The perfect is the enemy of the good
- Disposable, will be replaced with better
- Don't compromise security

Example: Walter Litt, Label Salesman Supreme



- While others go back and forth with HQ
 - Makes the drawing
 - Sends in the order
 - Ships the product

Employee Example: The IT Clerk

- While others griped about the slow computer
 - Snuck in at night
 - Replaced the processor with 2x speed
 - Bought with his own money
 - Got a ticker-tape parade
 - Got reimbursed
 - Got promoted

Employee Prototyping

- Listens to jungle drums
- Knows requirements
- Discusses, thinks, refines
- Produces prototype
 - Skims time from authorized projects
 - Or bills it to research
- Refines till satisfaction

Employee Example: Merge Report

- DP Mgr needed sorted list across accounts
- Boss might not have approved
- Dev conscripted time from authorized projects
- Produced the program quick and dirty
- Got tickertape parade
- Boss was happy
- Everyone was happy with Dev

Hired Gun Example: Retaining Customers

- Worldwide network of Cisco Routers
- Needed software to control them
- Java dev employees estimated 6 months
- Customers threatening to bolt
- Perl/SNMP hired gun did it in a week
- Customers retained
- Hired gun made good coin
- Hired gun got good publicity
- Java devs grateful
 - Got more time
 - Learned from the prototype

Hired Gun Prototyping

- Walk in
- Hear requirements
- Discuss, think, refine
- Propose
- Negotiate
- Produce prototype
- Refine till satisfaction

Prototype Development Prerequisites

- Know your prototyping tools !!!!!
- Right-size the contract, deal, or fait accompli

Prototyping Tools

- Drawing tools (including pencil and paper)
- RAD
 - Rails
 - Google Apps Script
 - Drupal
 - Lazarus
- Shellscripts & small programs

Know Your Prototyping Tools

Drawing Tools (non working prototype)

- Screen by screen
- Everyone on same page
- Initial scope is set
- Impossibilities discovered and agreed upon.

RAD

- Twitter didn't always use Scala
 - Started with Rails
- Quick and cheap to program
- Learn needs and landmines
- Cheap enough to replace

Shellscripts & Small Programs

- Compartmentalize and isolate debugging
- Provide easy to access test points
- Lightning quick to write
- Quickie shellscript interfaces
 - Dialog (ncurses)
 - Zenity (GTK+)
 - YAD (Zenity fork)
 - Home-Grown CGI (browser app)
 - other

Right-Size Prototype Development

- Prototypes are for incremental development
 - Not flat dollar bids
- Small businesses develop for small businesses
- Big businesses develop for big businesses
- Prototypes not for government or megacorps
- Prototypes are accepted by small businesses
- Accepted by small departments in large businesses

About Those Flat Dollar Bids

- Everyone I know who did it got screwed
- Inadequately defined requirements
- Scope creep
- Flat out dishonesty
- Unrecovered cost of estimation
 - Especially if you lose the bid
- Big businesses have estimating professionals
 - You don't

Flat Dollar Bid Alternative

- Bill per hour
- Prototype instantly
- Milestone early, milestone often
- Invoice early, invoice often

Summary

- Prototypes
 - Are working subsets of the desired system
 - Make you money
 - Enhance your career
 - Get you out of tough situations
 - De-necessitate flat dollar bids
- Philosophy
 - Milestone and invoice early and often
 - Do it quick, do it cheap
 - Know your prototyping tools !!!!!
 - The perfect is the enemy of the good
 - Disposable, will be replaced with better
 - Don't compromise security