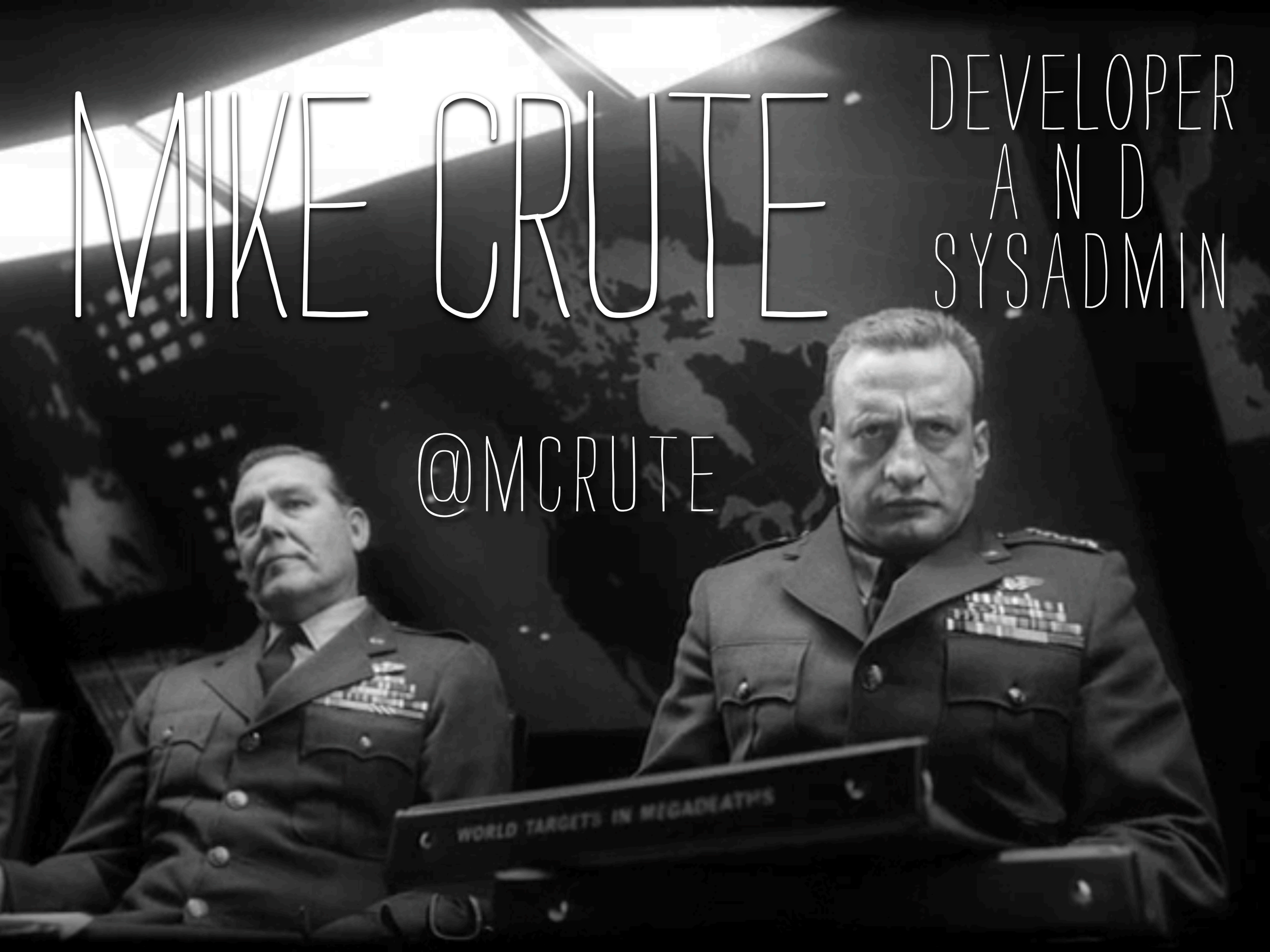
DEVOPS

OR:
HOW I
LEARNED
TO STOP
WORRYING
AND
LOVE THE
OPS TEAM

MIKE CRUTE

DEVELOPER
AND
SYSADMIN

@MCRUTE



- WHAT IS DEVOPS?
- BASIC TOOLS
- APPLICATION DEPLOYMENT
- RUNTIME MONITORING
- DEBUGGING THE APPLICATION

WHAT IS DEVOPS?

DEVELOPERS

DEVELOPERS

- KINDA STRANGE
- LOVE SHINY NEW THINGS
- ALWAYS BREAKING MY SERVERS

ADD FEATURES TO THE SYSTEM

OPERATIONS

OPERATIONS

- PULL THE LEVERS AND PUSH THE BUTTONS
- EASILY EXCITED
- YELL A LOT DURING EMERGENCIES
- SAY "NO" ALL THE TIME

KEEPS THE SYSTEM STABLE AND
FAST

DEVOPS

DEVOPS
➡ OPS WHO THINK LIKE DEVS
➡ DEVS WHO THINK LIKE OPS

ENABLE THE BUSINESS

LOWERING THE RISK OF CHANGE THROUGH TOOLS AND CULTURE

IT'S ABOUT COMMUNICATION

USEFUL AT ANY SIZE COMPANY

PEACE IS OUR PROFESSION
STRATEGIC AIR COMMAND
BURPELSON
AIR FORCE BASE
AFTER THE WRECK
COMES THE RECKONING
Peace
IS OUR
PROFESSION
STOP

BASIC TOOLS

SHARED VERSION CONTROL

- CONFIGS AND CODE LIVE IN THE SAME PLACE
- ANYONE CAN SEE EVERYTHING
- GITHUB AND BITBUCKET ARE GREAT FOR THIS

TESTING

- INTEGRATION TESTS FOR THE SYSTEM
- INTEGRATION TESTS FOR THE INFRASTRUCTURE
- END TO END TESTS FOR THE SYSTEM

CONTINUOUS INTEGRATION

- BIG AND VISIBLE
- SHOW ALL THE BUILDS AND TESTS
- CAN EVEN USE THIS TO TRIGGER RELEASES

INTEGRATION ENVIRONMENTS

- STAGING ENVIRONMENT
- SHOULD LOOK LIKE PRODUCTION
- DEVELOPERS SHOULD BE ABLE TO DEPLOY HERE
- DEVELOPERS HAVE ROOT HERE

APPLICATION DEPLOYMENT

TOOLS OF THE TRADE

- CONFIGURATION MANAGEMENT TOOLS
- PACKAGE MANAGERS

CONFIGURATION

- STATIC CONFIGURATION
- PER ENVIRONMENT CONFIG
- SERVICE LOCATIONS
- SECRETS

DEPLOYMENT TECHNIQUES

- BY HAND
- RSYNC
- BITTORRENT
- DISTRIBUTION PACKAGE MANAGERS

SCALING

- PORTABLE CODE
- ISOLATE UNRELATED SERVICES
- SWITCHES/GRACEFUL DEGRADATION (GARGOYLE)

RUNTIME MONITORING

TOOLS OF THE TRADE

- LOG MANAGEMENT (SPLUNK)
- REALTIME MONITORING (NAGIOS)
- STATISTICS COLLECTION (STATSD, GANGLIA)
- VISUAL/GRAPHING TOOLS (CACTI, MRTG)
- SCRIPTABLE INTERFACES (REST/CURL, SNMP)

LOGGING

- ISOLATION OF SUBSYSTEMS / GRANULAR CONFIGURATION
- USE LEVELS CORRECTLY
- GREP IS KING
- SESSION IDENTIFICATION

DON'T BE PRETTYLOG

```
+-----------------------------------------------+
| D | 2012-07-28 07:51:38 | UCS | 6578 | 1922     |
|-----------------------------------------------|
| credit_card.processor                         |
|-----------------------------------------------|
| <e>f7fbba6e0636f890e56fb...</e>               |
+-----------------------------------------------+
```

DON'T BE PRETTYLOG

```
./bin/de_prettylog.py
./bin/unpretty.py
./bin/wtfprettylog.py
```

EXCEPTION TRACKING

- TRACK ALL EXCEPTIONS
- SENTRY
- NEW RELIC
- BUG TRACKER INTEGRATION

STATISTICS

- PROVIDE STATISTICAL INFORMATION WHEN POSSIBLE
- NOT EVERYTHING HAS TO BE AGGREGATED

NAGIOS

- SIMPLE PING TESTS
- HTTP CHECKS
- PASSIVE CHECKS
- CUSTOM ACTIVE CHECKS

SNMP

- STANDARD COLLECTION INTERFACE
- CAN PROVIDE INDIVIDUAL STATS OR COLLECTIONS OF STATS
- WORKS NICELY WITH CACTI
- NET-SNMP IS EASY TO EXTEND

MANAGING ERRORS

- REPETITIVE ERRORS ARE DEATH
- SOMETIMES FIXES AREN'T POSSIBLE WITHOUT MOVING CODE
- HAVE SOME WAY TO SILENCE ERRORS TEMPORARILY
- CONTINUE LOGGING SILENCED ERRORS

DEBUGGING

NUCLEAR WARHEAD
HANDLE WITH CARE
HI THERE!
NUCLEAR WARHEAD
HANDLE WITH CARE
DEAR JOHN

TOOLS OF THE TRADE

- GREP
- MSSH
- SPLUNK
- FILTERS / PETIT / ARTIFICIAL IGNORANCE
- MANAGEMENT INTERFACES

LOGGING

- PROVIDE DETAILED LOG BOXES FOR EACH ROLE
- SHOULD LOG EVERYTHING AT DEBUG LEVEL
- RUNS ~10% OF PRODUCTION TRAFFIC

CONSOLE

- INTERACTIVE SHELL TO POKE THE APPLICATION
- INTERACTIVE DATABASE SHELLS
- SHOULD HAVE READ/WRITE ACCESS

SCRIPT EVERYTHING

- ➡ COMMON TASKS SHOULD BE SCRIPTED
- ➡ SCRIPTS SHOULD BE RUNNABLE BY SUPPORT TEAMS
- ➡ DOCUMENT YOUR SCRIPTS
- ➡ COMMIT THOSE SCRIPTS

MANAGEMENT INTERFACES

- EMPOWER USERS TO SOLVE THEIR OWN PROBLEMS
- DON'T OVERWHELM THEM WITH DETAILS
- CODE MOVES SHOULD NOT BE NECESSARY

QUESTIONS?

THANK YOU