Leveraging Global Talent for Effective Agility

Todd Little
Sr. Development Manager,
Landmark/Halliburton

Joe Hughes
VP
Logigear

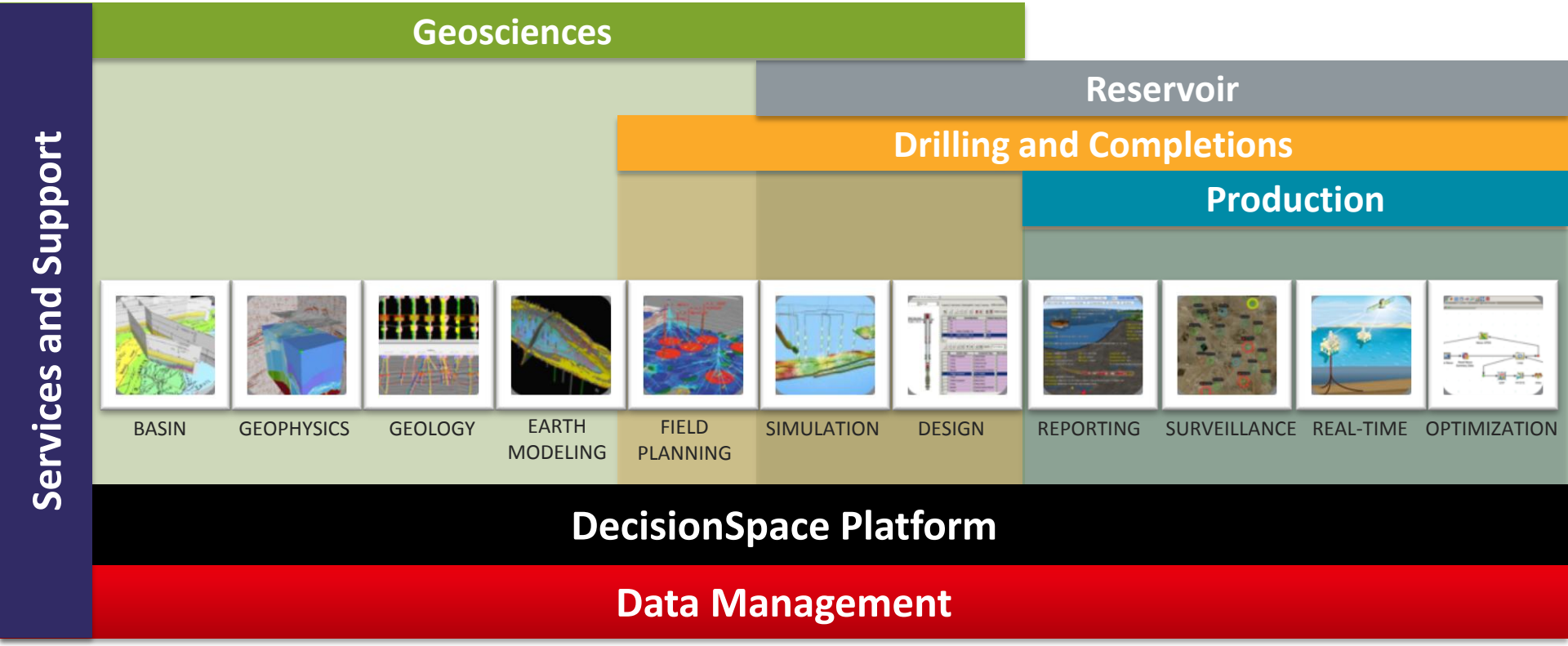
Suzanne Elliott
Sr. Quality Manager
Landmark/Halliburton

Florin Simion
Principal
Simco

HALLIBURTON

Landmark E&P Ecosystem

Collaborative Applications – Data Management – Modern Platform – Expert Services

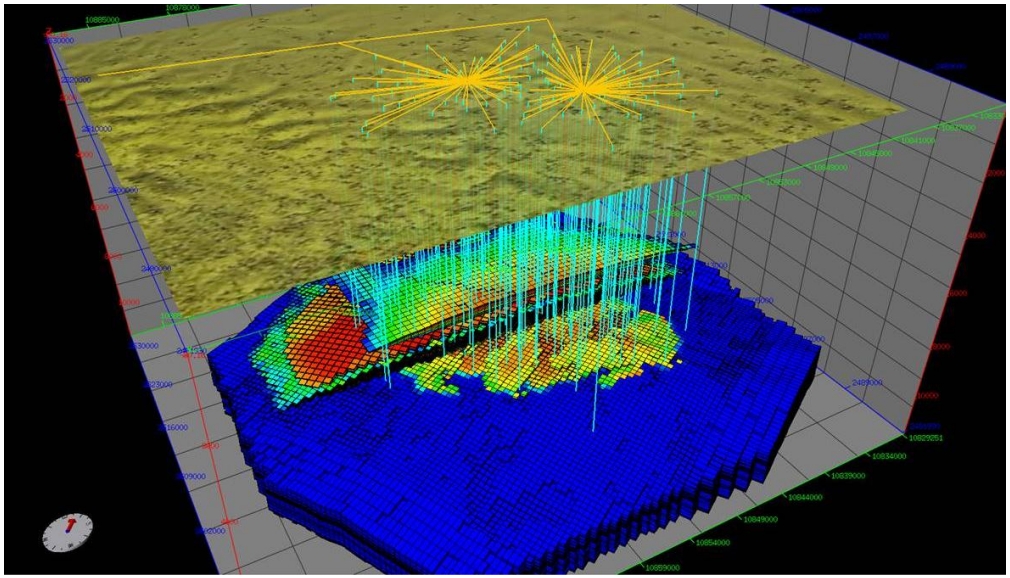


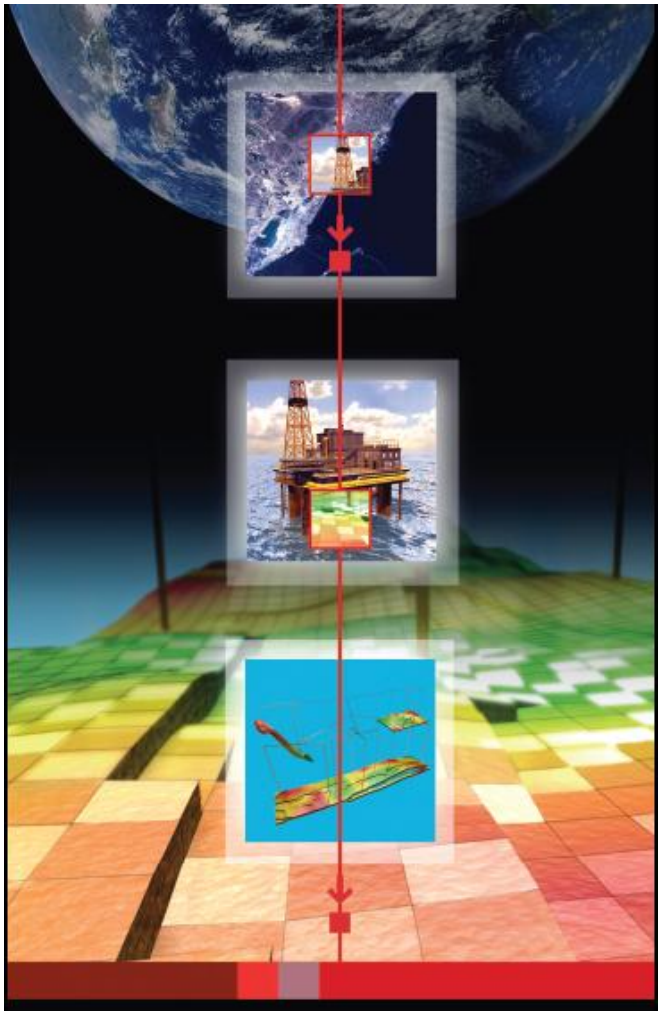
© 2009 Halliburton. All Rights Reserved.

HALLIBURTON

Nexus Reservoir Simulation

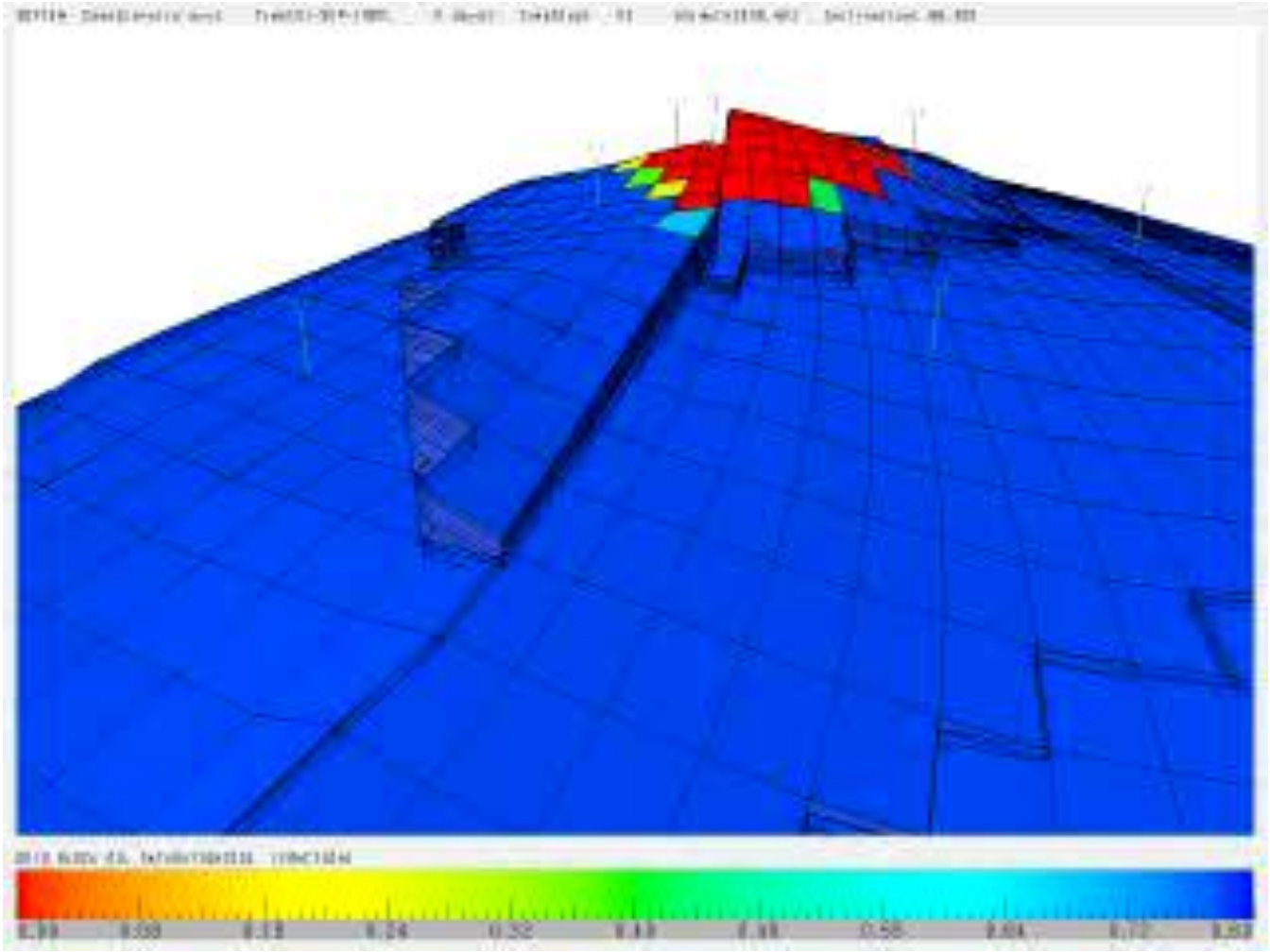
- Next Generation Reservoir Simulation





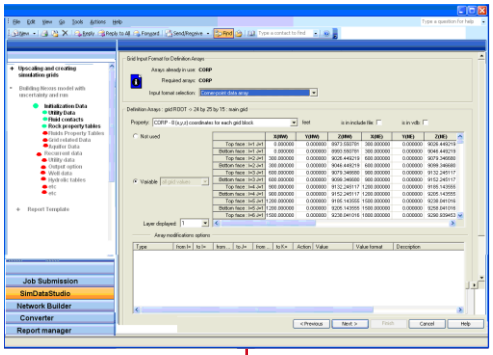
© 2009 Halliburton. All Rights Reserved.

Petroleum Reservoir Simulation

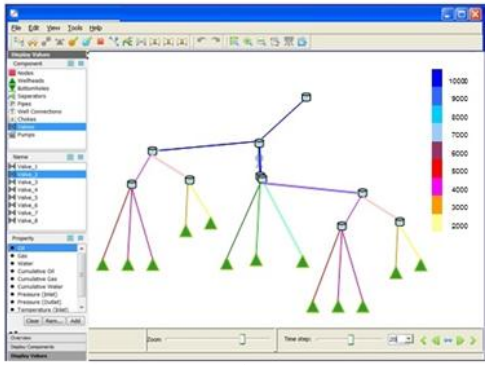


© 2009 Halliburton. All Rights Reserved.

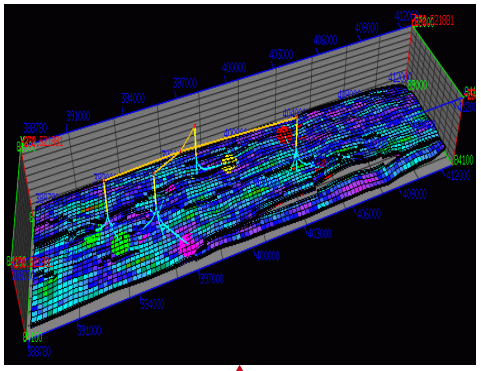
System Workflow



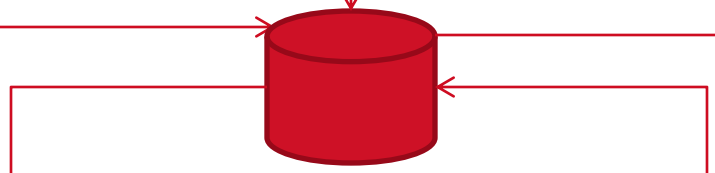
User Interface



Graphical Pre-Processing



Graphical Post-Processing



High Performance Cluster

© 2009 Halliburton. All Rights Reserved.

HALLIBURTON

Computing Challenges

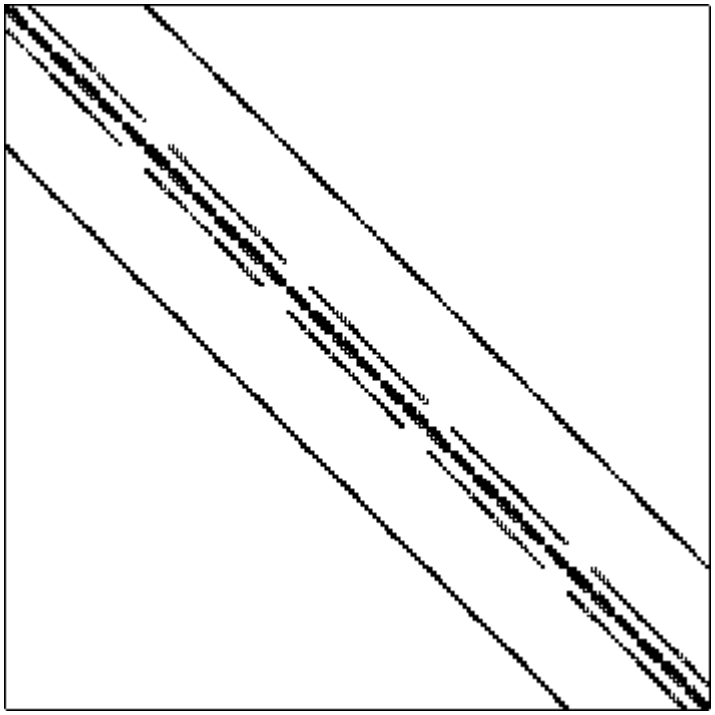
$$\sum_{j=1}^{N_i}\sum_{r=0}^{R_{ij}}\int_{e_{ij}}\left\{\frac{KK_{ro}}{\mu_o}\frac{R_{so}\rho_{GS}}{B_o}+KK_{ro}\frac{\partial}{\partial p}\left(\frac{R_{so}\rho_{GS}}{\mu_o B_o}\right)\delta p\right\}_l^{(n+1)}(\Phi^i_{o_{j,r}})_l^{(n+1)}\nabla\phi^i_{j,r}(\mathbf{x})\cdot\mathbf{n}\,dA$$

$$+\sum_{j=1}^{N_i}\sum_{r=0}^{R_{ij}}\int_{e_{ij}}\left[\frac{KK_{ro}}{\mu_o}\frac{R_{so}\rho_{GS}}{B_o}(\delta p^i_{j,r})\right]_l^{(n+1)}\nabla\phi^i_{j,r}(\mathbf{x})\cdot\mathbf{n}\,dA+\sum_{k=1}^{N_w}\sum_{m=1}^{M_{w,k}}\int_{V_i}\left\{q^G_{o,k,m}\right.$$

$$\left.+\frac{\mu_o B_o}{R_{so}\rho_{GS}}q^G_{o,k,m}\frac{\partial}{\partial p}\left(\frac{R_{so}\rho_{GS}}{\mu_o B_o}\right)\delta p+WI_{k,m}\frac{K_{ro}R_{so}\rho_{GS}}{\mu_o B_o}(\delta p_{bh,k}-\delta p)\right\}_l^{(n+1)}\delta_{k,m}\,d\mathbf{x}$$

$$=\frac{V_i}{\Delta t_n}\left\{\left(\phi\frac{R_{so}\rho_{GS}}{B_o}s_o\right)_l^{(n+1)}-\left(\phi\frac{R_{so}\rho_{GS}}{B_o}s_o\right)^{(n)}+\left[c_r\phi_a\frac{R_{so}\rho_{GS}}{B_o}s_o+\phi s_o\frac{\partial}{\partial p}\left(\frac{R_{so}\rho_{GS}}{B_o}\right)\right]_l^{(n+1)}(\delta p)_l^{(n+1)}\right.$$

$$\left.-\left(\phi\frac{R_{so}\rho_{GS}}{B_o}\right)_l^{(n+1)}(\delta s_w)_l^{(n+1)}+\left[\phi s_o\frac{\partial}{\partial p_b}\left(\frac{R_{so}\rho_{GS}}{B_o}\right)\right]_l^{(n+1)}(\delta p_b)_l^{(n+1)}\right\}_{\mathbf{x}=\mathbf{x}_i}.$$



- Some Simulations take hours or even days, or even …
- Our Testers are Petroleum Engineers, not Test Automation Specialists
- Numerical Simulation is an approximation and as such is subject to round-off and/or perturbation differences

© 2009 Halliburton. All Rights Reserved.

Managing the Coming Storm

Inside the Tornado

Project Kickoff


When will we get the requirements?


All in good time, my little pretty, all in good time


But I guess it doesn't matter anyway


Just give me your estimates by this afternoon

Team Unity


Not so fast! Not so fast! ... I'll have to give the matter a little thought. Go away and come back tomorrow


No, we need something today!


Ok then, it will take 2 years.


No, we need it sooner.


Doesn't anybody believe me?


I already promised the customer it will be out in 6 months


You're a very bad man!

We’re not in Kansas Anymore

Developer Hero

I may not come out alive, but I'm goin' in there!

Reorg

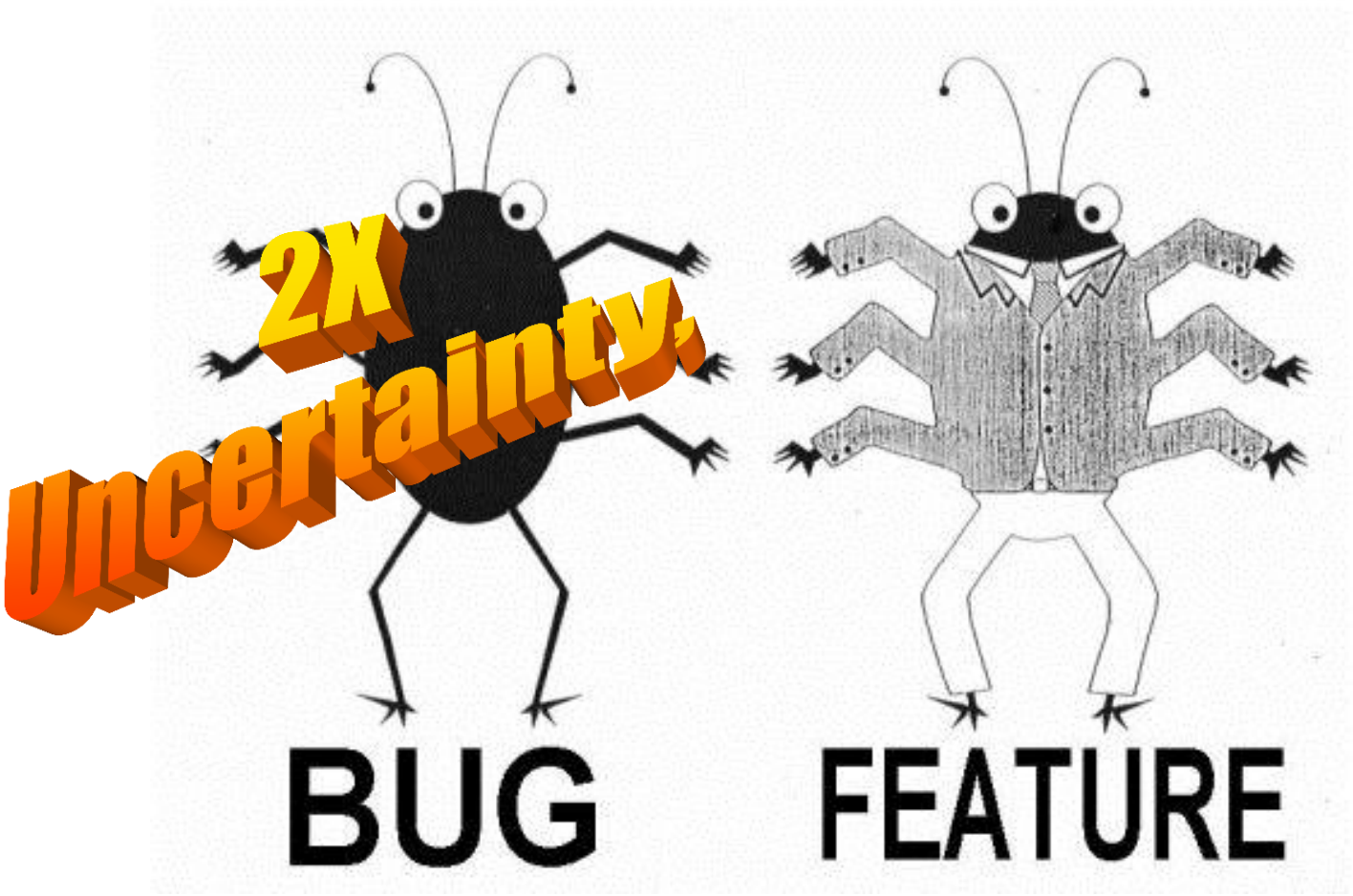
The Great and Powerful Oz has got matters well in hand.

My! People come and go so quickly here!

Testing

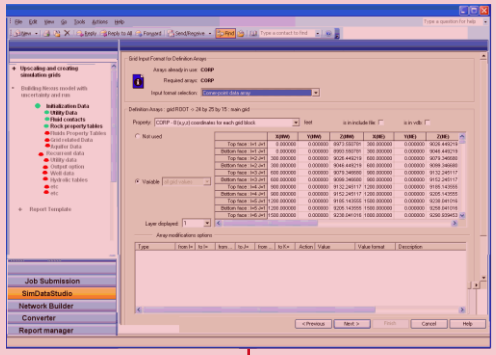
Hee hee hee ha ha! Going so soon? I wouldn't hear of it! Why, my little party's just beginning!

Lan Cao - Estimating Agile Software Project Effort: An Empirical Study

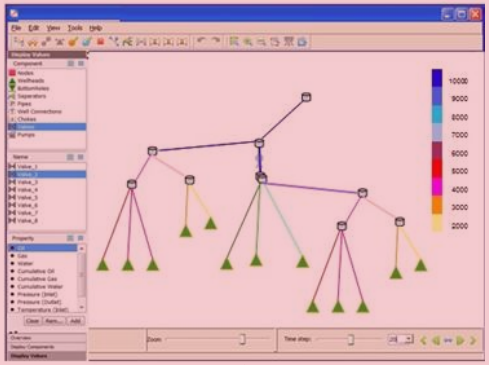


© 2009 Halliburton. All Rights Reserved.

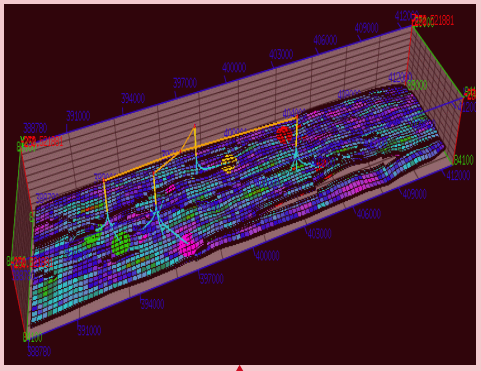
System Workflow



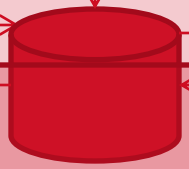
User Interface



Graphical Pre-Processing



Graphical Post-Processing

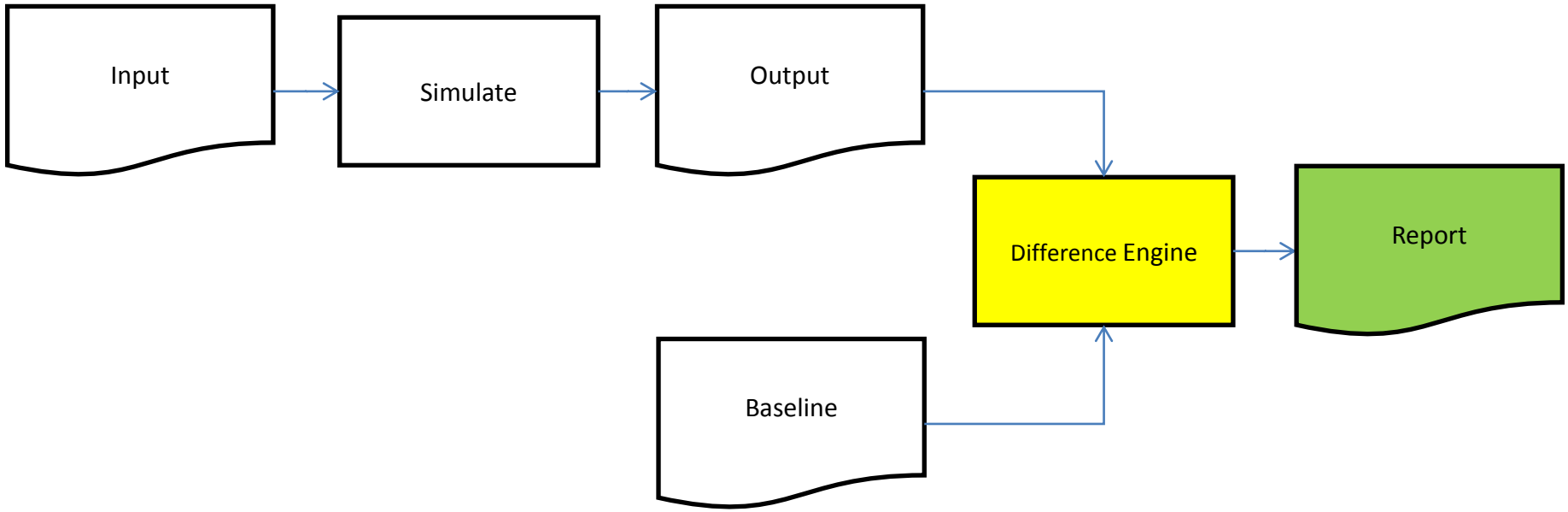


High Performance Cluster

© 2009 Halliburton. All Rights Reserved

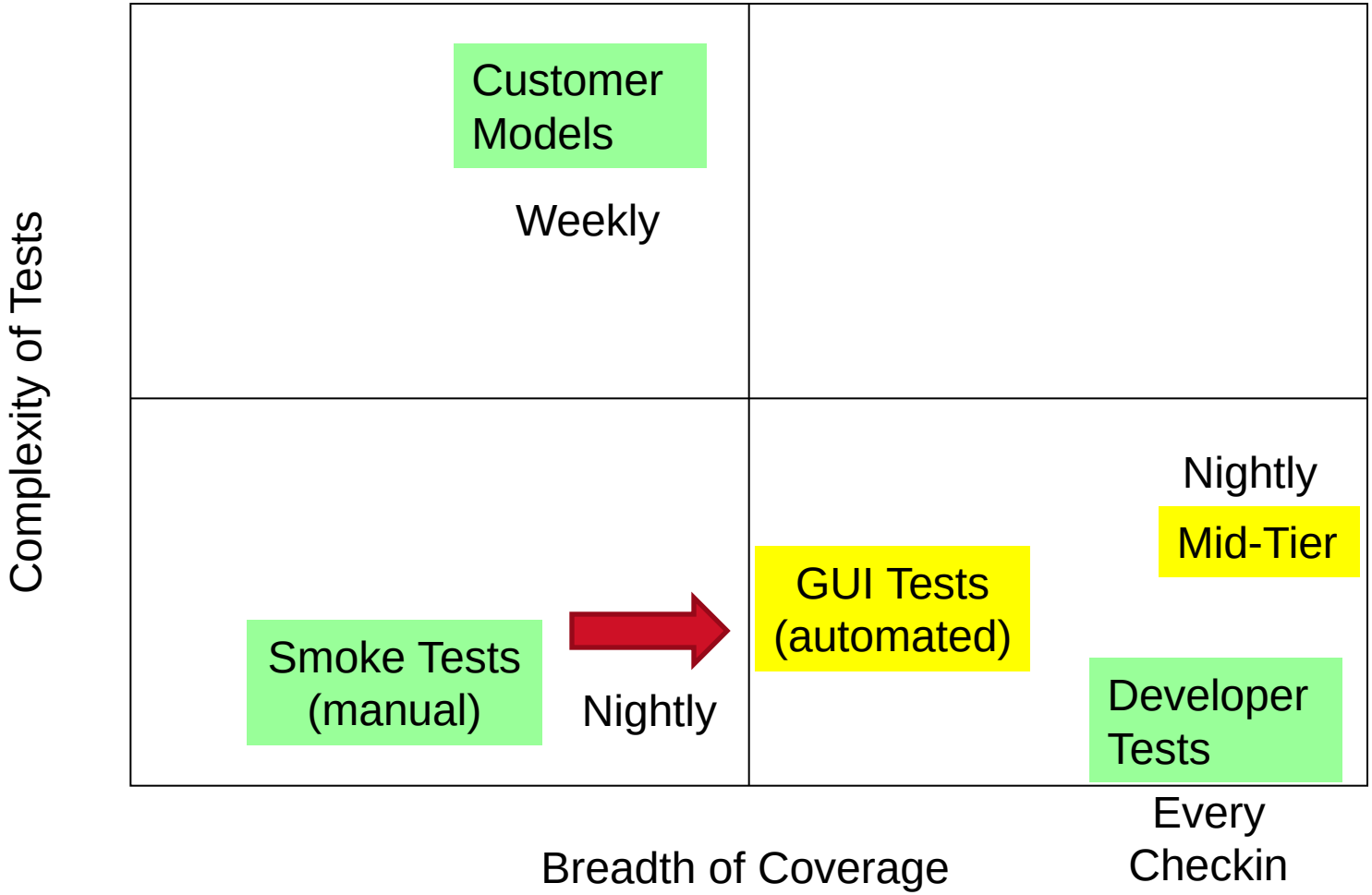
HALLIBURTON

Test Automation Workflow



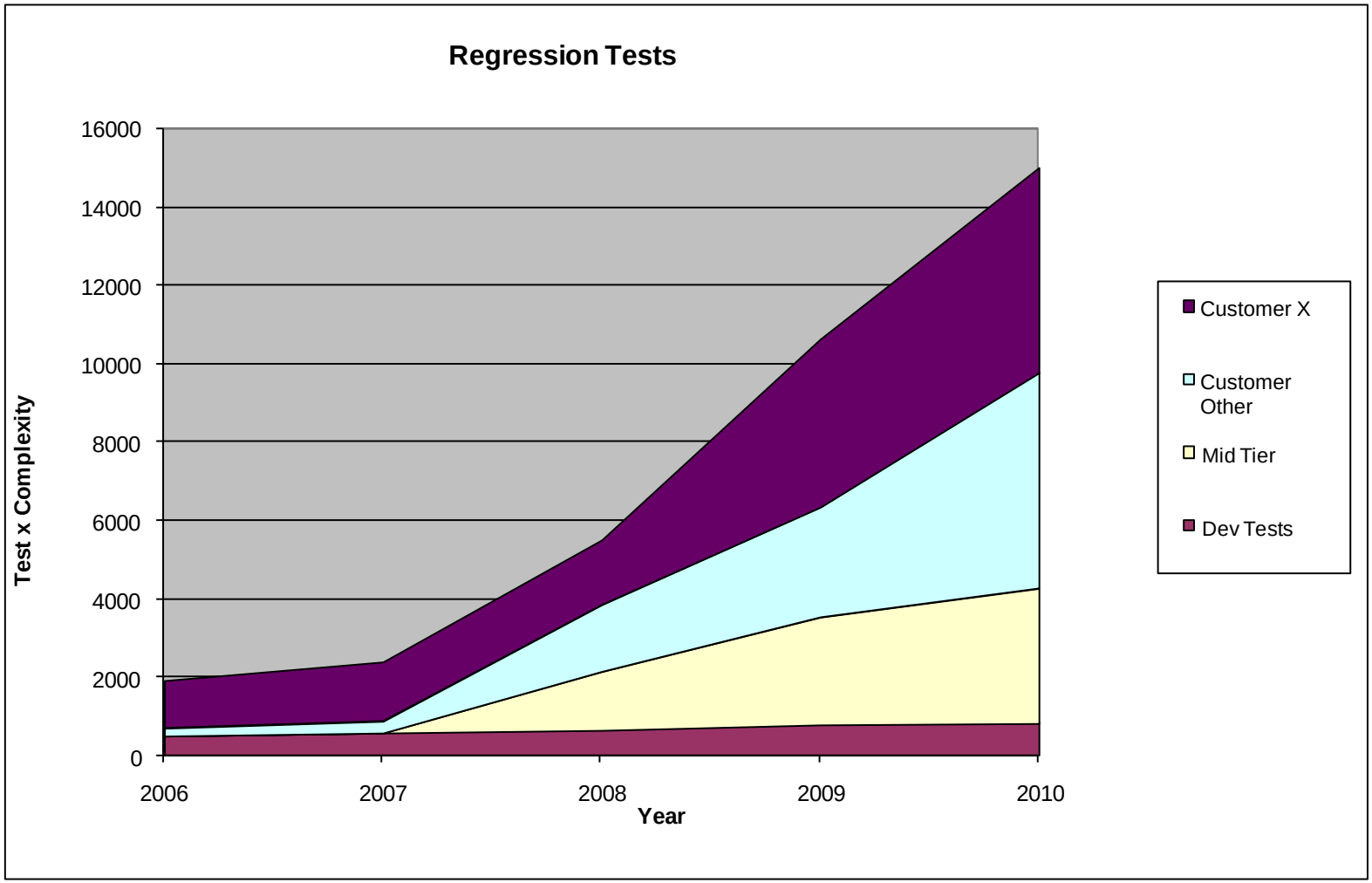
© 2009 Halliburton. All Rights Reserved.

Testing and Automation Strategy



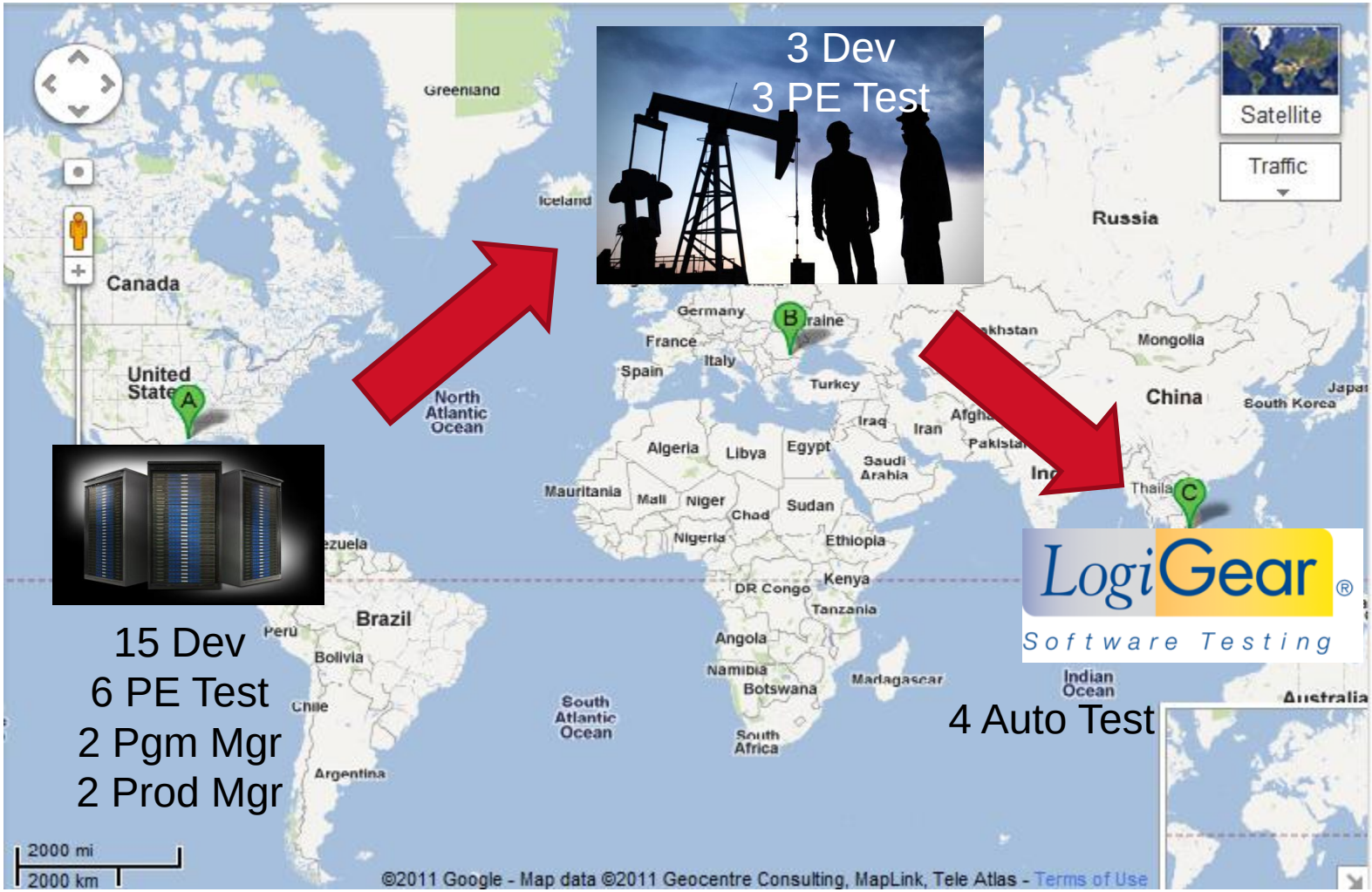
© 2009 Halliburton. All Rights Reserved.

Simulator Regression Tests over time



© 2009 Halliburton. All Rights Reserved.

Global Expertise
(Houston, Bucharest, Ho Chi Minh City)



© 2009 Halliburton. All Rights Reserved.

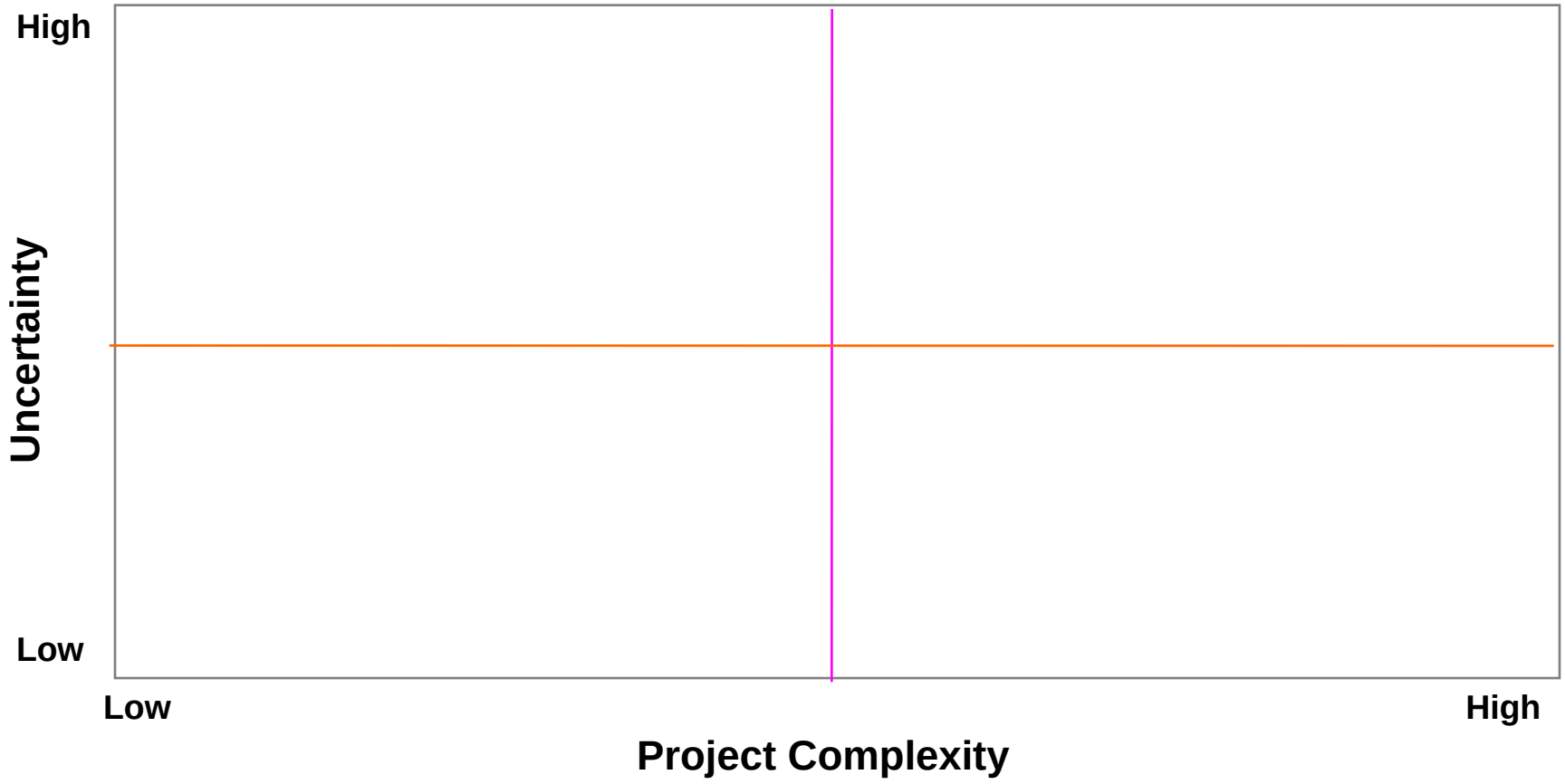
The Bottom Line

© 2009 Halliburton. All Rights Reserved.

Distributed Teams

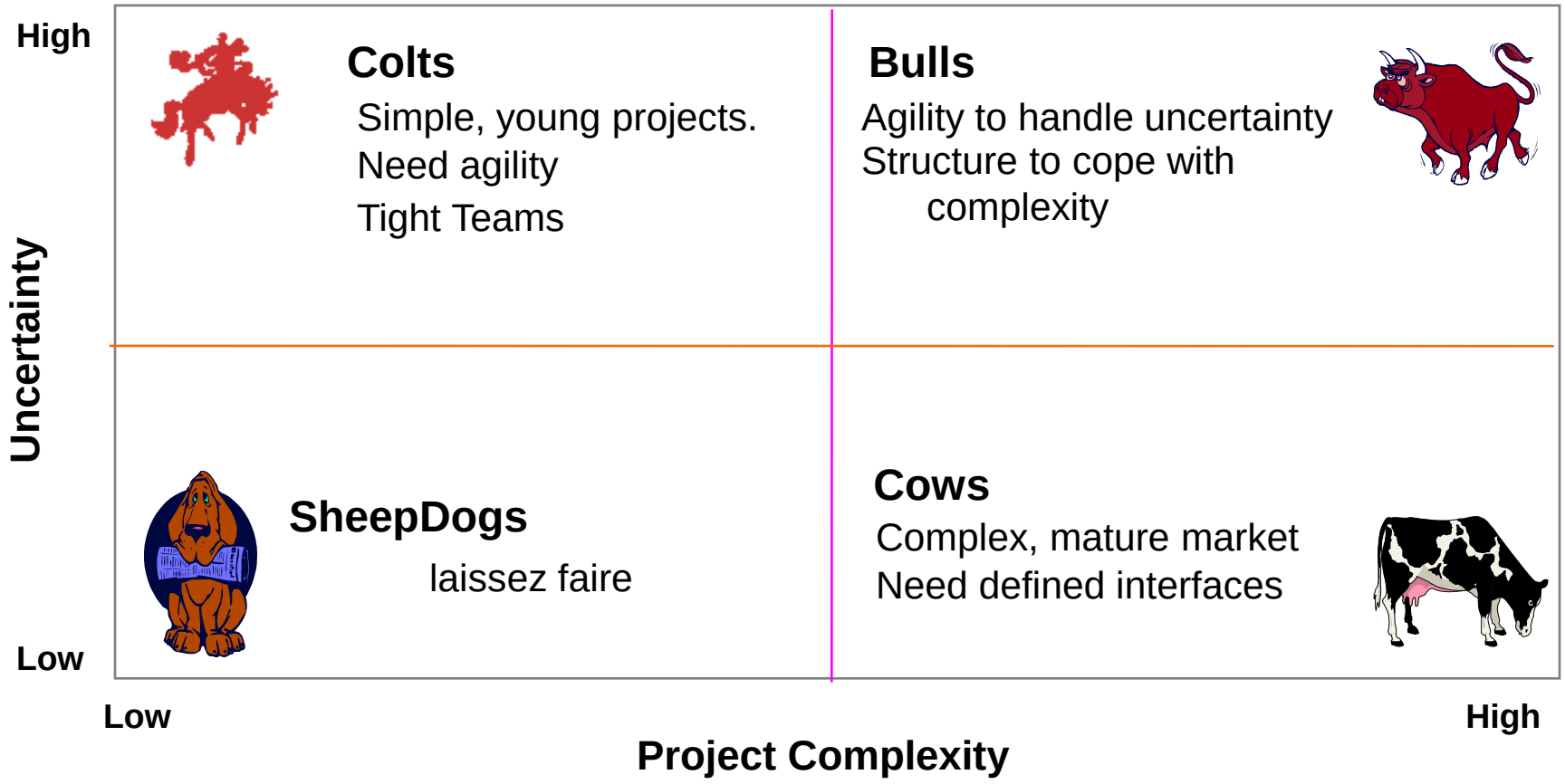
© 2009 Halliburton. All Rights Reserved.

Context Leadership Model



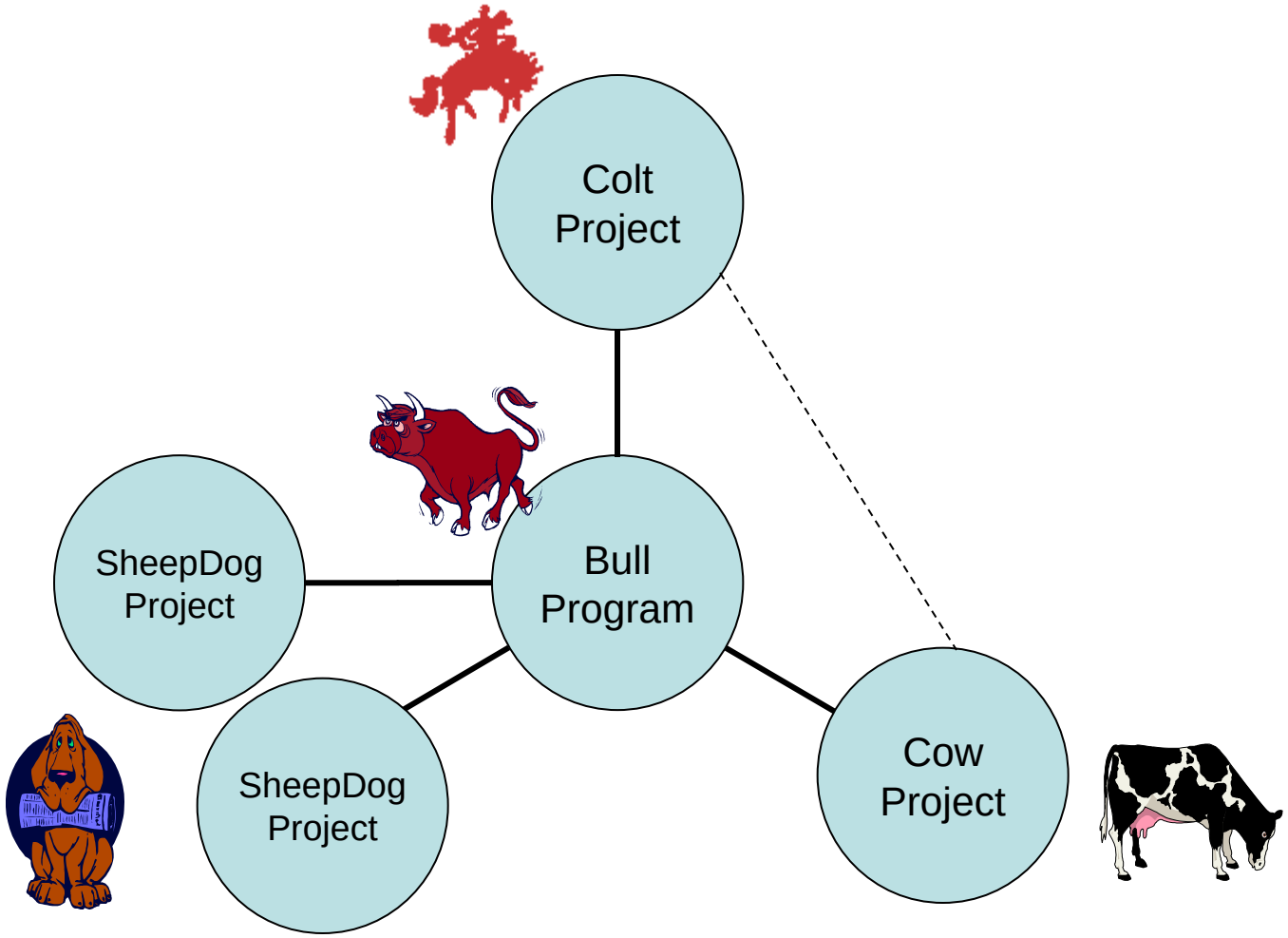
© 2009 Halliburton. All Rights Reserved.

Context Leadership Model



© 2009 Halliburton. All Rights Reserved.

Partitioning



Search for Loose Coupling and Strong Cohesion

© 2009 Halliburton. All Rights Reserved.

A Tale of 4 Projects within a Program

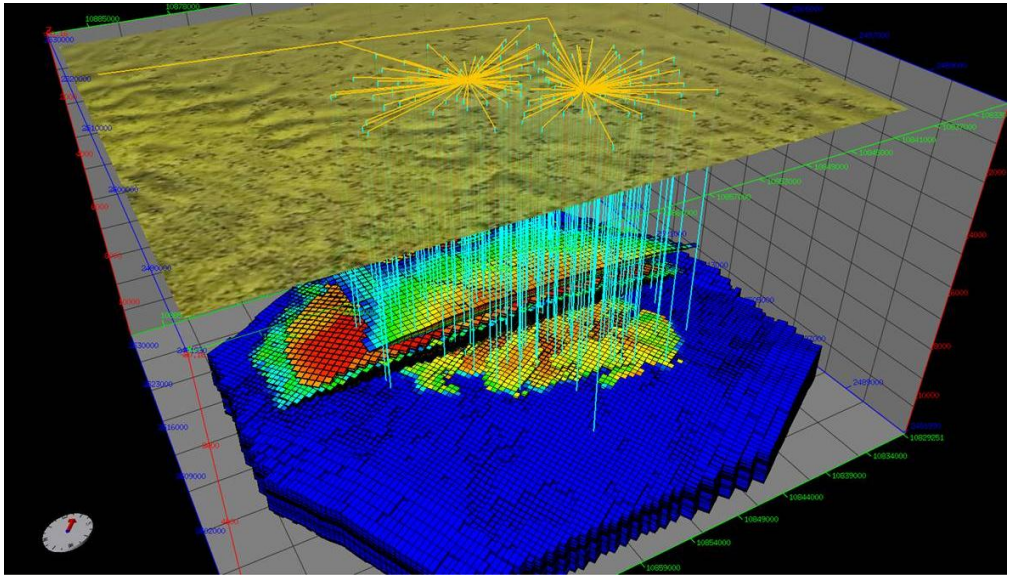
	A Cow	A Colt	A SheepDog	A SheepDog	A Bull Program
Team Size	20	8	2	5	35 (4 teams)
Distributed	Global (3 sites)	Global (2 sites)	Local	Global (4 sites)	Global (4 sites)
Scrums	3/week	Daily	Daily	2/week	none
Iteration Length	3 weeks	1 week	1 week	Iterationless	3 weeks

© 2009 Halliburton. All Rights Reserved.

Outsourcing Challenges

© 2009 Halliburton. All Rights Reserved.

Outsourcing Challenge: Proprietary Data



© 2009 Halliburton. All Rights Reserved.

Outsourcing Challenge: Time Shift

© 2009 Halliburton. All Rights Reserved.

Outsourcing Challenge: Xenophobia

© 2009 Halliburton. All Rights Reserved.

Key Take Aways

- ***Find and Correct Defects Early to Reduce Uncertainty***
- ***A Testing Strategy Helps to Maximize Efficiency***
- ***Test Automation Helps to Maintain Velocity***
- ***Outsourcing Can Work When Used Judiciously.***
- ***Treat Outsourcer as a Partner***
- ***Cost Effective Global Talent***
- ***Distributed Teams Can be Effective***
- ***Test Automation Does not Replace Exploratory Testing***

© 2009 Halliburton. All Rights Reserved.

Leverage Global Talent

© 2009 Halliburton. All Rights Reserved.

Think Globally and Optimize the Whole

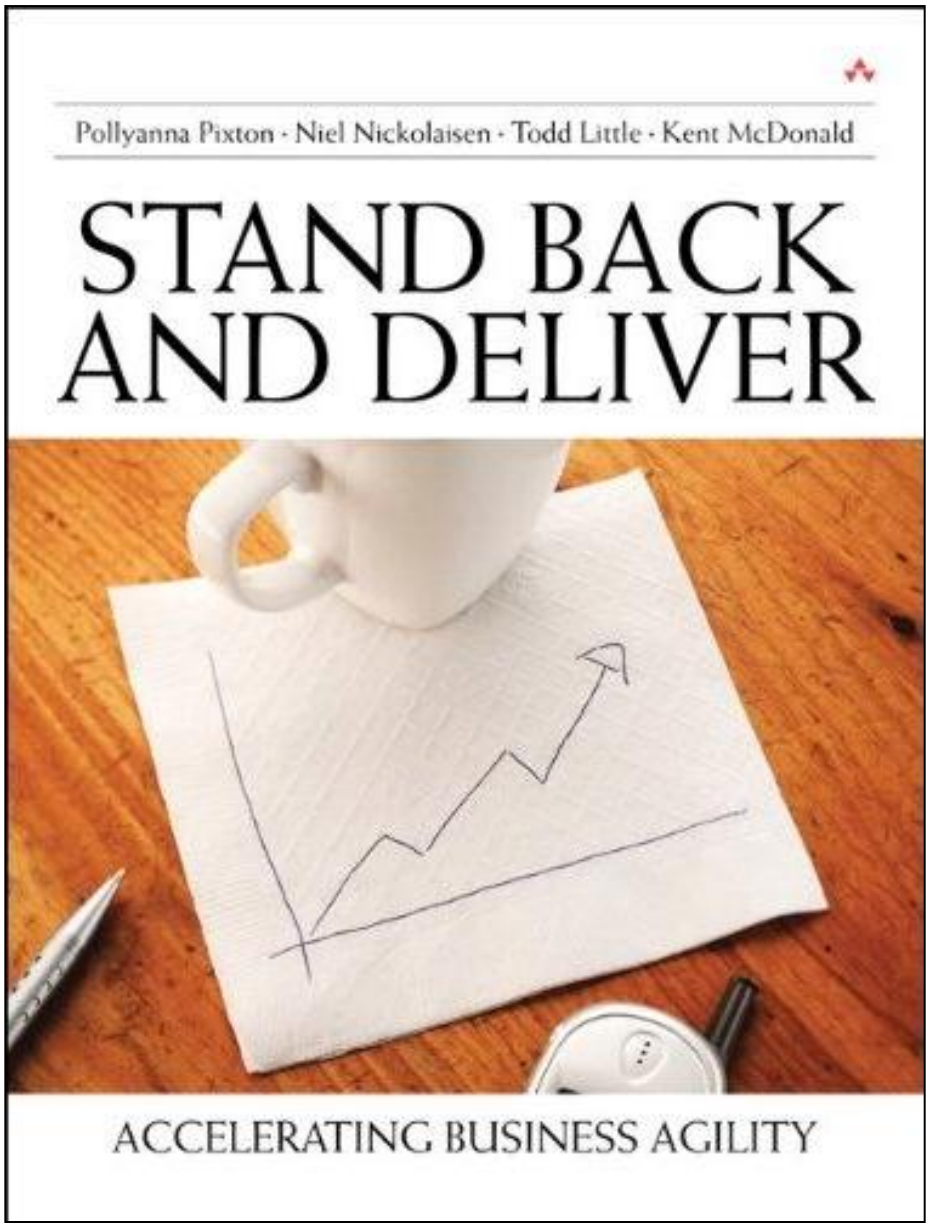
© 2009 Halliburton. All Rights Reserved.

Automate – Automate - Automate

© 2009 Halliburton. All Rights Reserved.

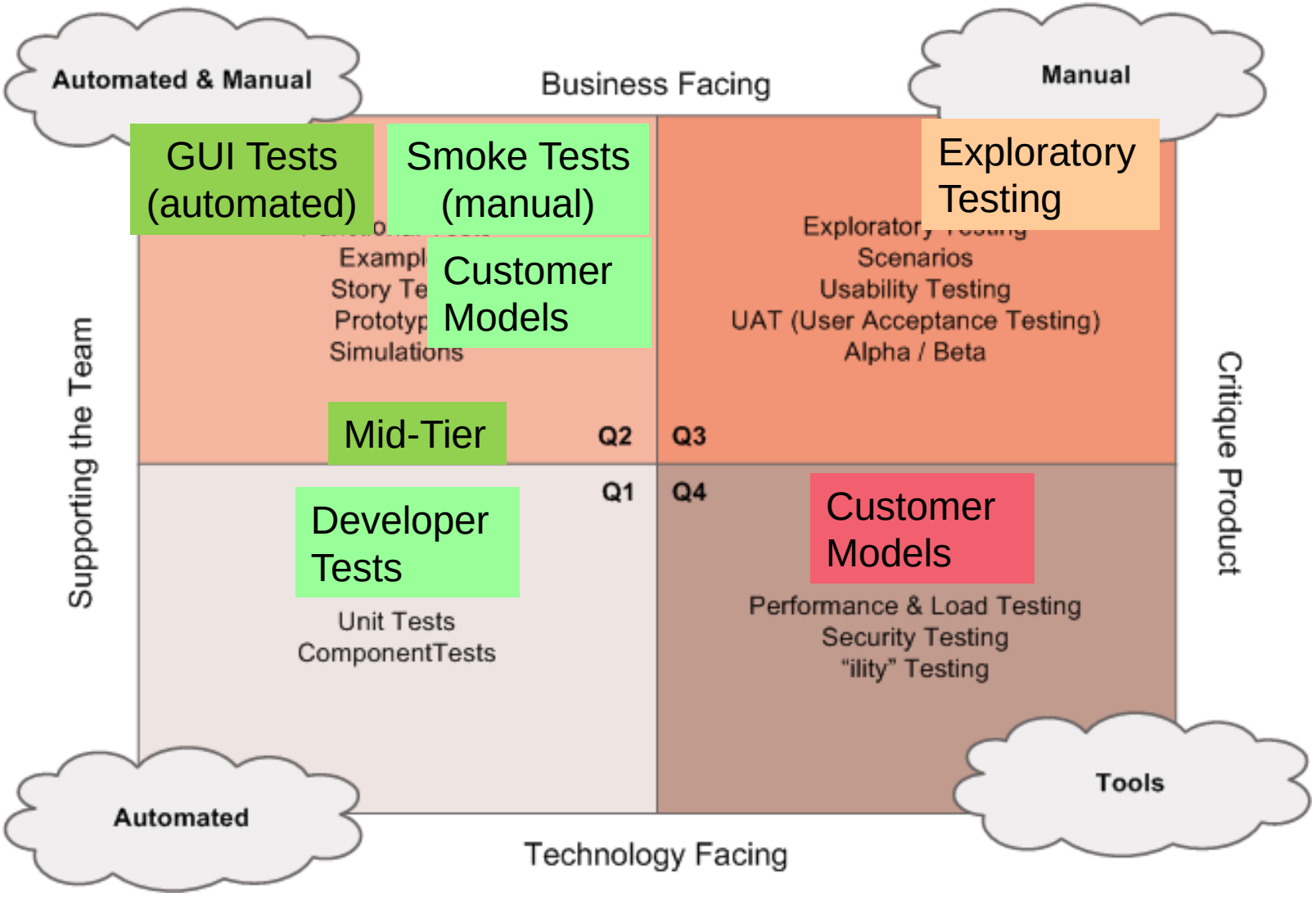
Contact

- Todd Little
  - tlittle@lgc.com
  - www.toddlittleweb.com
- Joe Hughes
  - joeh@logigear.com
  - www.logigear.com



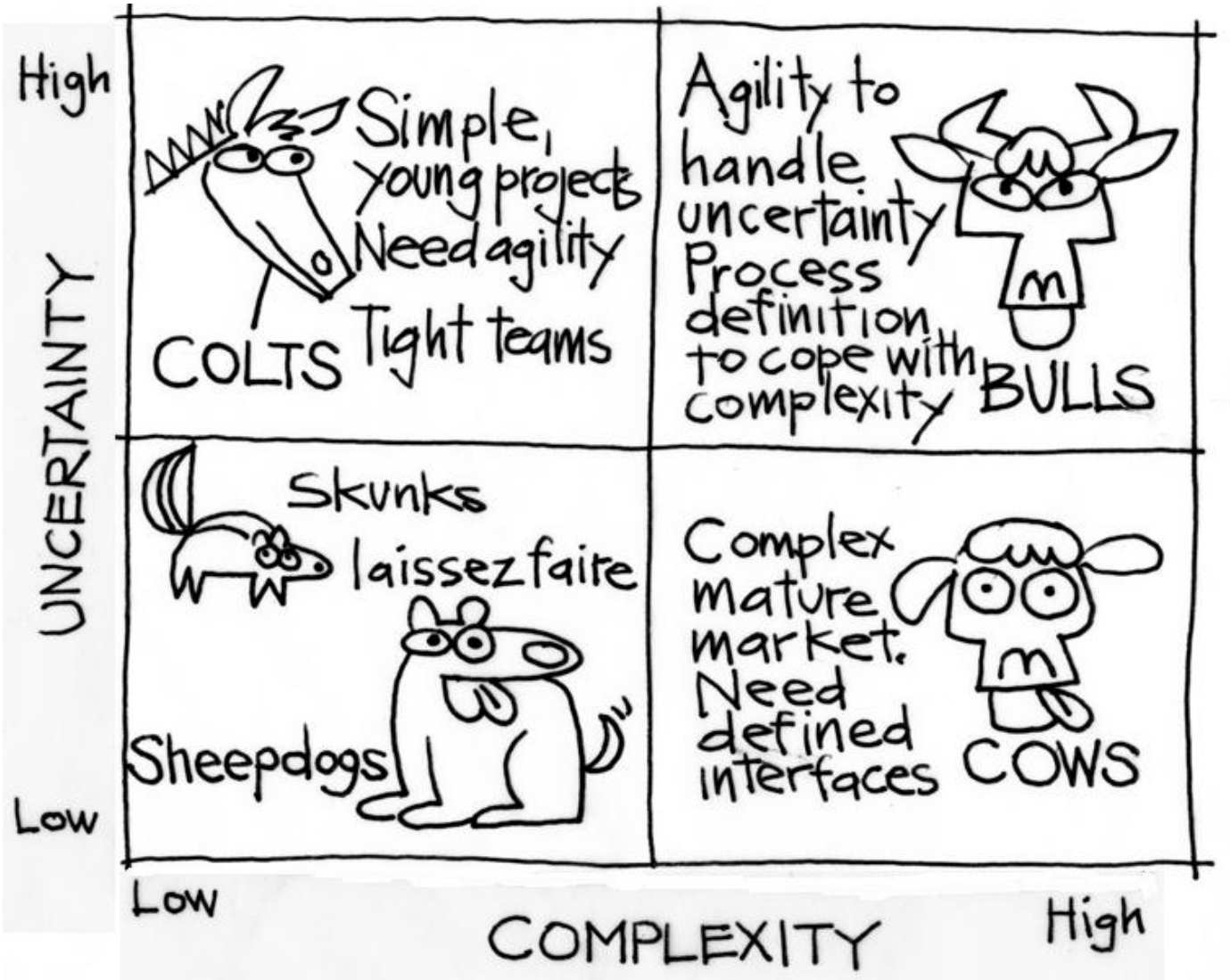
© 2009 Halliburton. All Rights Reserved.

Testing Quadrants



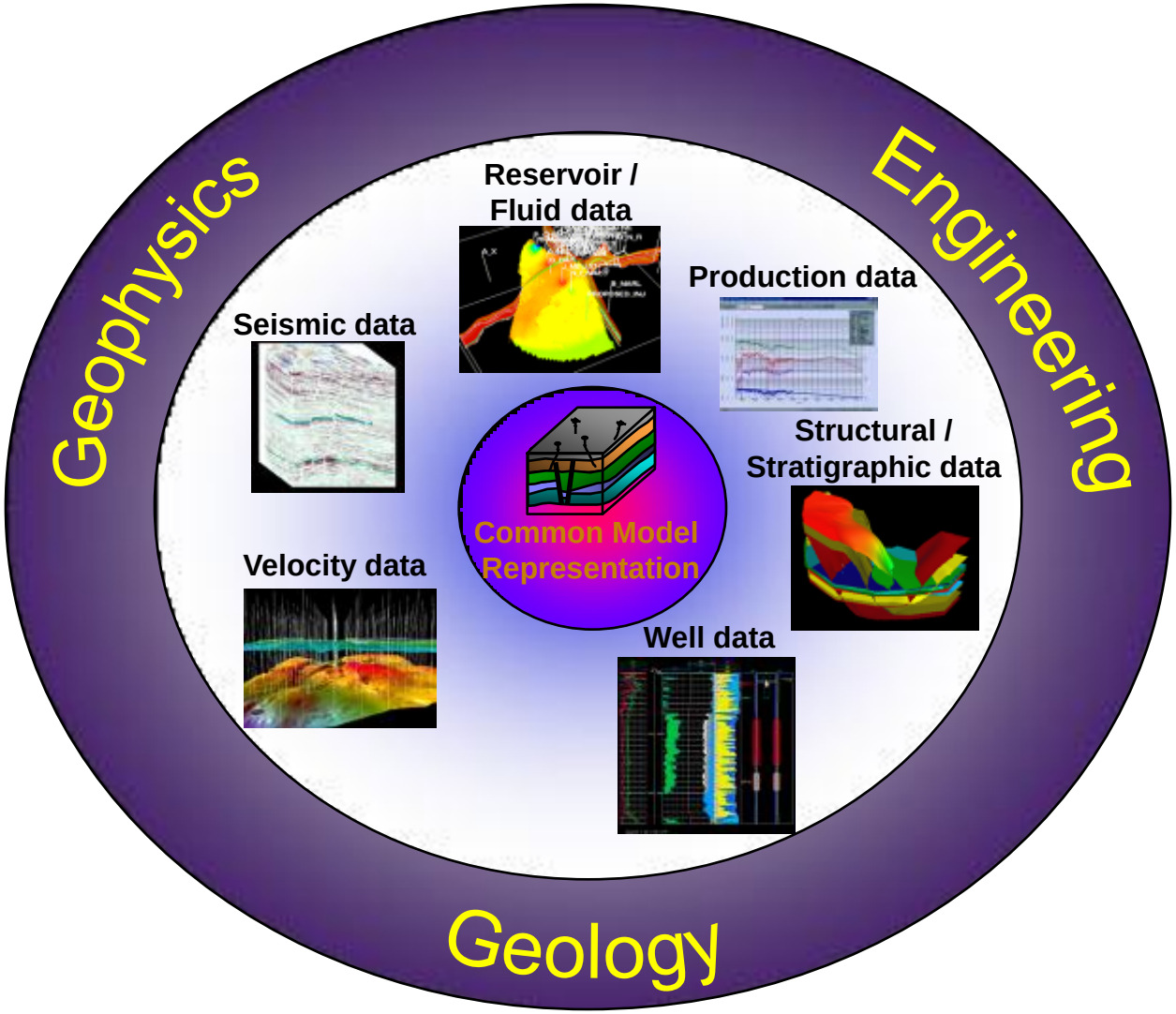
© 2009 Halliburton. All Rights Reserved.

Context Leadership Model



© 2009 Halliburton. All Rights Reserved.

Landmark Software and Services



© 2009 Halliburton. All Rights Reserved.