

The Phoenix Project Audio Additional Materials

THE THREE WAYS



As excerpted from

THE DEVOPS HANDBOOK

**How to Create World-Class Agility, Reliability,
& Security in Technology Organizations**

By Gene Kim, Jez Humble, Patrick Debois, and John Willis

Table 1. *The ever accelerating trend toward faster, cheaper, low-risk delivery of software*

	1970s–1980s	1990s	2000s–Present
Era	Mainframes	Client/Server	Commoditization and Cloud
Representative technology of era	COBOL, DB2 on MVS, etc.	C++, Oracle, Solaris, etc.	Java, MySQL, Red Hat, Ruby on Rails, PHP, etc.
Cycle time	1–5 years	3–12 months	2–12 weeks
Cost	\$1M–\$100M	\$100k–\$10M	\$10k–\$1M
At risk	The whole company	A product line or division	A product feature
Cost of failure	Bankruptcy, sell the company, massive layoffs	Revenue miss, CIO's job	Negligible

(Source: Adrian Cockcroft, “Velocity and Volume (or Speed Wins),” presentation at FlowCon, San Francisco, CA, November 2013.)

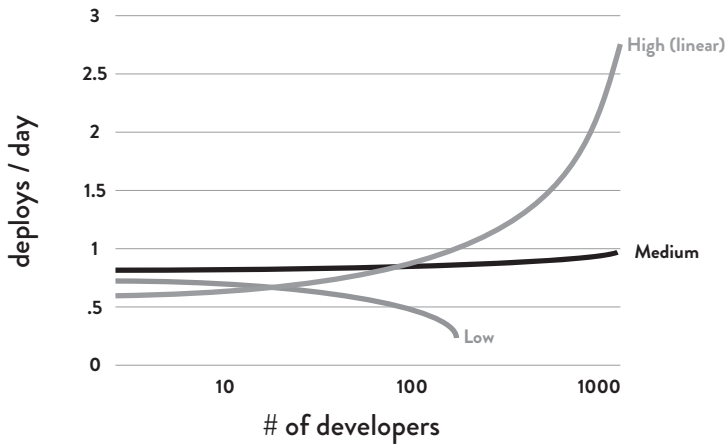


Figure 1. Deployments/day vs. number of developers (Source: Puppet Labs, 2015 State Of DevOps Report.) †

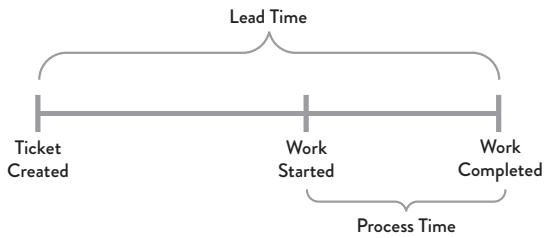


Figure 2. Lead time vs. process time of a deployment operation

† Only organizations that are deploying at least once per day are shown.

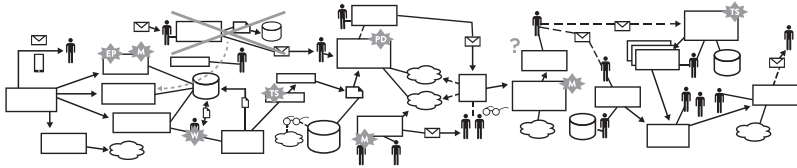


Figure 3: A technology value stream with a deployment lead time of three months
 (Source: Damon Edwards, "DevOps Kaizen," 2015.)

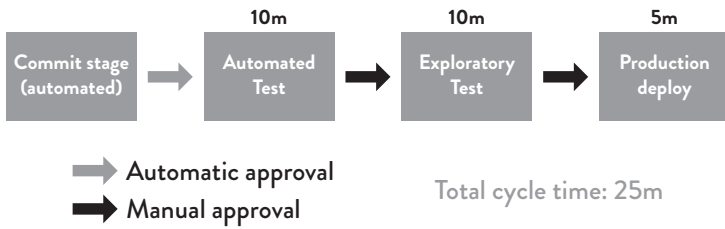


Figure 4: A technology value stream with a lead time of minutes

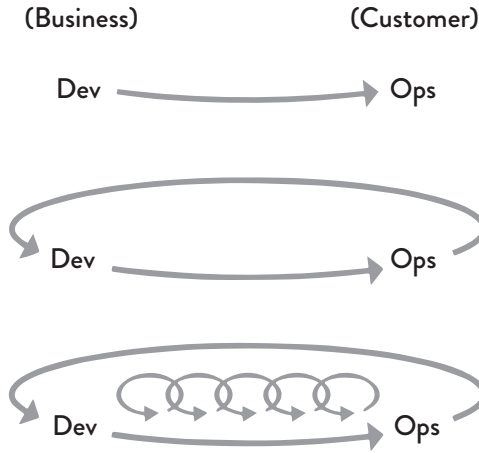


Figure 5: The Three Ways (Source: Gene Kim, “The Three Ways: The Principles Underpinning DevOps,” IT Revolution Press blog, accessed August 9, 2016, <http://itrevolution.com/the-three-ways-principles-underpinning-devops/>)

Ready	Investigate	Development		Ops		UAT	Delivered
		Doing	Done	Doing	Done		
Expedite	→	→	→	→	→	→	
■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■

Figure 6: An example kanban board, spanning Requirements, Dev, Test, Staging, and In Production (Source: David J. Andersen and Dominica DeGrandis, Kanban for ITOps, training materials for workshop, 2012.)

Large Batches



Single-Piece Flow



Figure 7: Simulation of “envelope game” (fold, insert, seal, and stamp the envelope)
 (Source: Stefan Luyten, “Single Piece Flow: Why mass production isn’t the most efficient way of doing ‘stuff’,”
 Medium.com, August 8, 2014, <https://medium.com/@stefanluyten/single-piece-flow-5d2c2bec845b#907sn74ns>.)

Pathological	Bureaucratic	Generative
Information is hidden	Information may be ignored	Information is actively sought
Messengers are “shot”	Messengers are tolerated	Messengers are trained
Responsibilities are shirked	Responsibilities are compartmented	Responsibilities are shared
Bridging between teams is discouraged	Bridging between teams is allowed but discouraged	Bridging between teams is rewarded
Failure is covered up	Organization is just and merciful	Failure causes inquiry
New ideas are crushed	New ideas create problems	New ideas are welcomed

Figure 8: The Westrum organizational typology model: how organizations process information (Source: Ron Westrum, “A typology of organisation culture,” *BMJ Quality & Safety* 13, no. 2 (2004), doi:10.1136/qshc.2003.009522.)