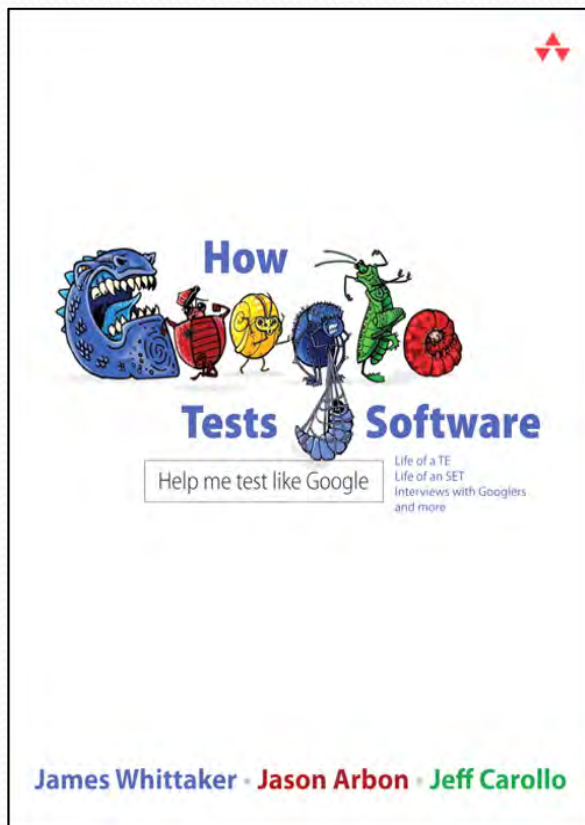
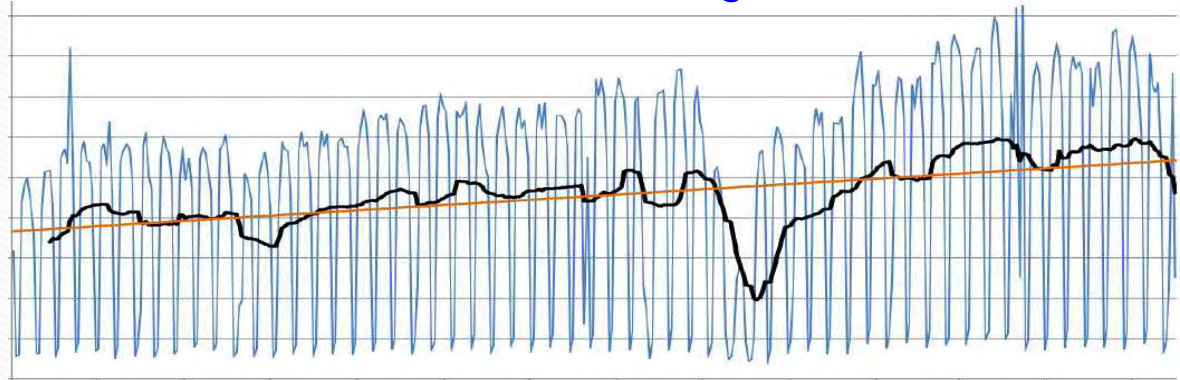


# Agile Testing ROI at Google

- Google early adopter of agile methods and Scrum
- Google also uses agile testing at enterprise scale
- 15,000 developers run 120 million tests per day



- 440 billion unique users run 37 trillion searches each year
- Single monolithic code tree with mixed language code
- Submissions at head – One branch – All from source
- 20+ code changes/minute – 50% code change/month
- 5,500+ submissions/day – 120 million tests per day
- 80,000 builds per day – 20 million builds per year
- Auto code inspections – For low defect density
- 10X programming productivity improvement
- \$150 million in annual labor savings (ROI as a result)



Micco, J. (2013). *Continuous integration at google scale*. Eclipse Con, Boston, MA.

Whittaker, J., Arbon, J., & Carollo, J. (2012). *How google tests software*. Upper Saddle River, NJ: Pearson Education.