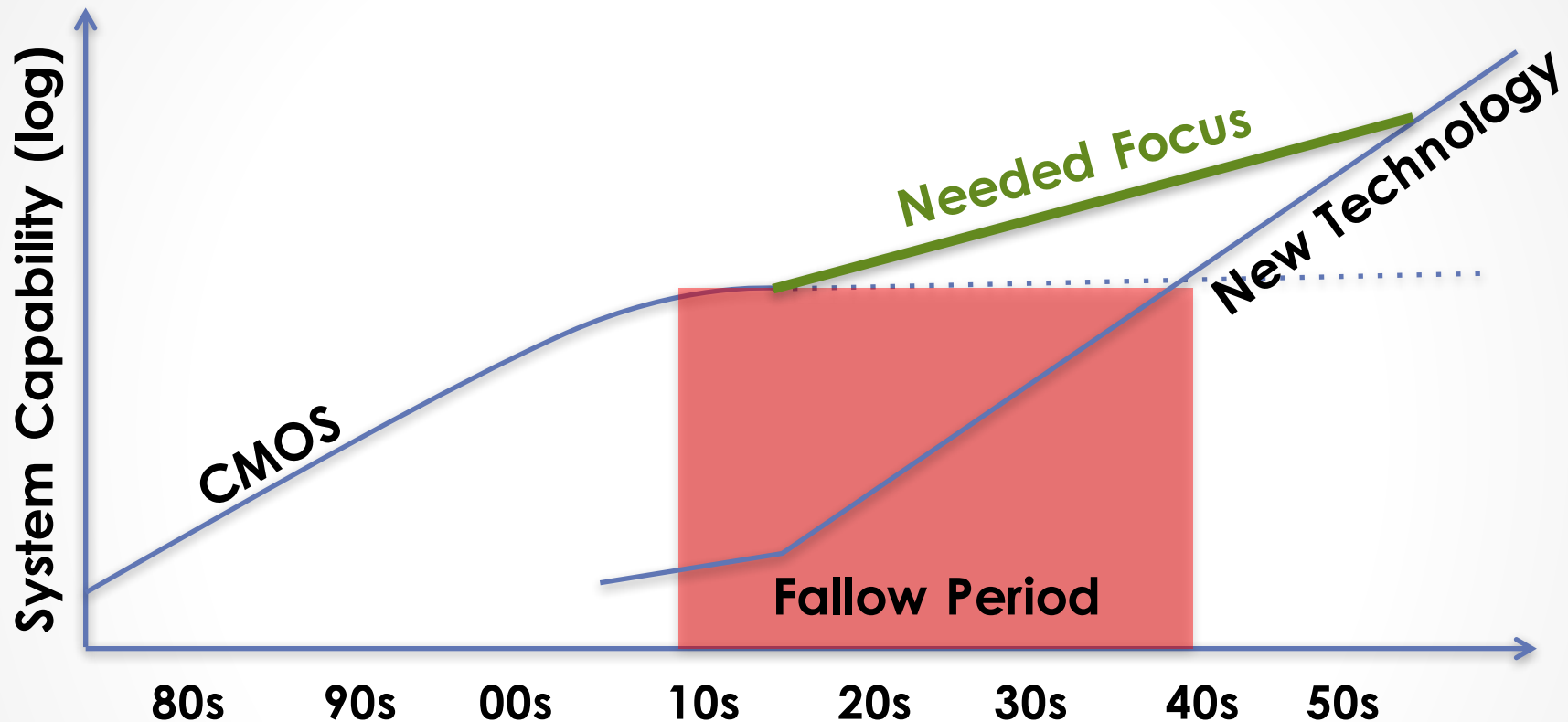


Mark D. Hill, UW-Madison

- IT ecosystem has benefited
 - 1000x performance gains 1980-2000
 - 1000x distributed/multicore/cores 2000-2020
 - W/ 1 MIPS: no deep learning or Siri
- Future applications TBD
 - Big Data
 - On-line
 - Secure & Private (we hope)

Future (Cost-) Performance?



Source: Advancing Computer Systems without Technology Progress,
ISAT Outbrief (http://www.cs.wisc.edu/~markhill/papers/isat2012_ACSWTP.pdf)
Mark D. Hill and Christos Kozyrakis, DARPA/ISAT Workshop, March 26-27, 2012.

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Department of Defense or the U.S. Government.

A View of Computer Layers

Problem

Algorithm

Application

Middleware / Compiler

Operating System

Microarchitecture

Logic Design

Transistors, etc.

Punch
Thru



(small)

Instrn Set
Architecture