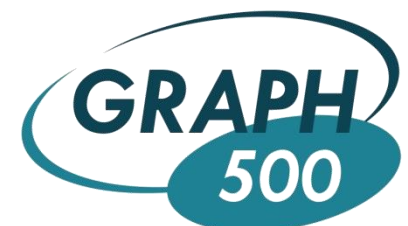




Torsten Hoefler
ETH Zürich
ISC' 19, Frankfurt, Germany

*With support of Anton Korzh, David Bader, Andrew Lumsdaine,
Richard Murphy, and Marc Snir*

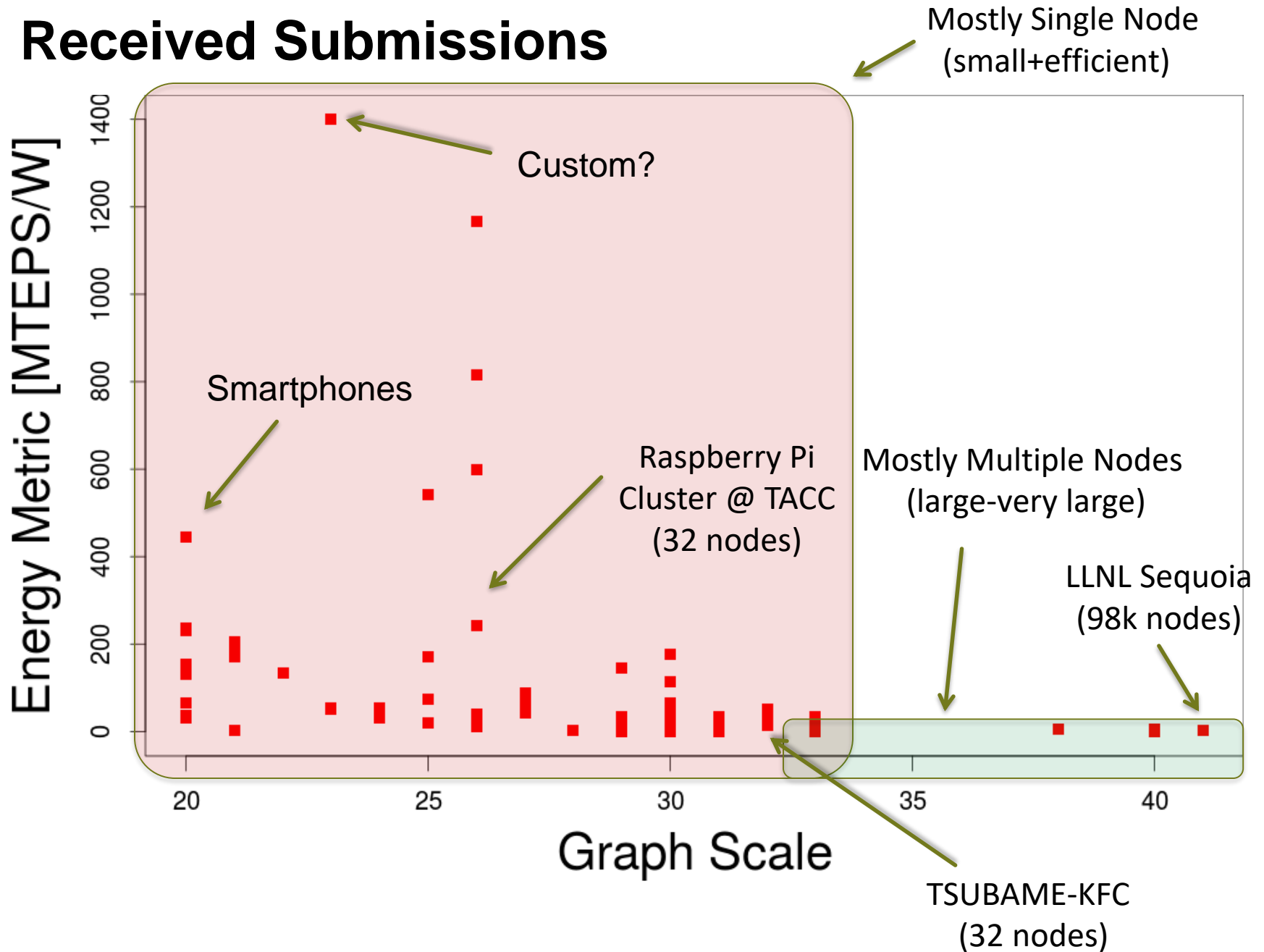


The Green Graph500 List

- **In close collaboration with Graph500 (same rules)**
 - Will have a separate list and separate awards
 - https://graph500.org/?page_id=446
- **Measurement techniques compatible with established practice and Green500**
 - Allows comparisons and cross-analyses
 - Only real measurements, no TDP etc.



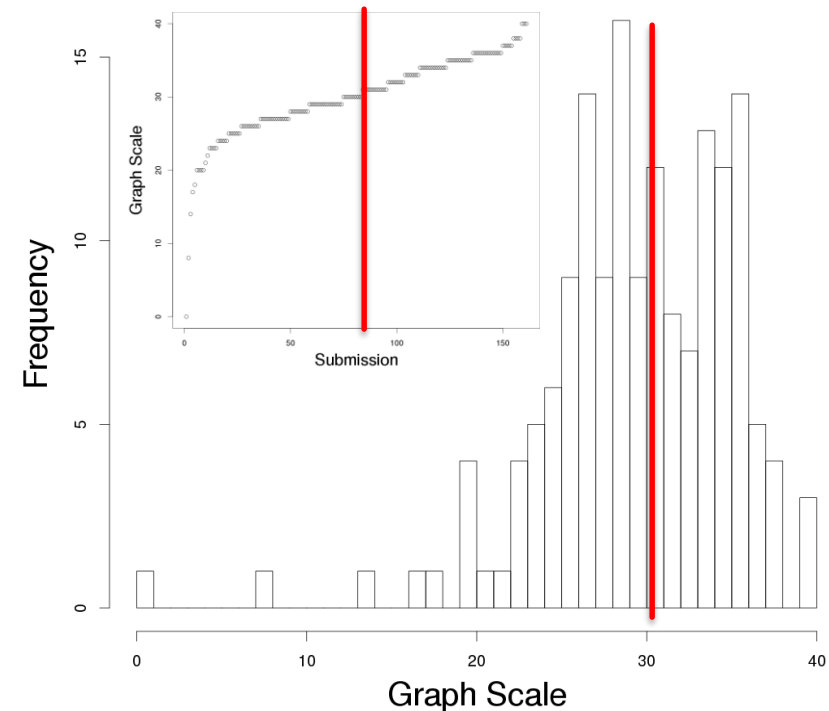
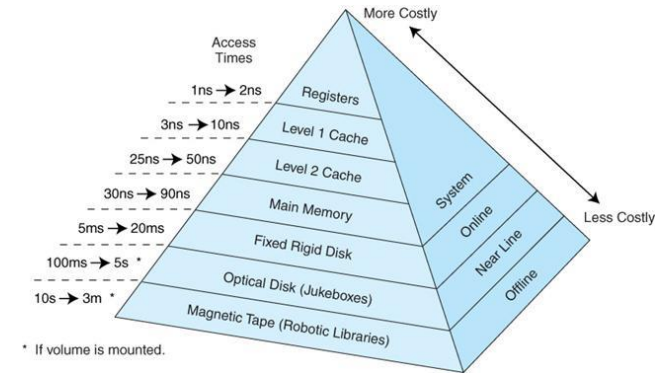
Received Submissions



A Natural Split

- **Small Data vs. Big Data**
 - Fundamentally different categories
 - Often: single node vs. multiple nodes
 - *Or: in cache vs. in memory?*
 - *Or: in registers???*

- **Graph500 doesn't limit the "minimal submission" (yet)**
 - Median of Graph500 scales
 - Unchanged since 2014: Scale 30



The Small Data List

Rank	MTEPS/W	Site	Machine	G500 rank	Scale	GTEPS	Nodes
<u>1</u>	1400.19	University of Wisconsin-Madison	Graph-WICIL-Node0	67	23	79.531	1
<u>2</u>	1165.71	IBM Moscow MSU Alex Kolganov	IBM POWER8+ Tesla P100	45	26	204	1
<u>3</u>	815.68	forsite-company.ru NVidia LTD	TitanX_forsite	55	26	132.14	1
<u>4</u>	597.86	SMARCO	Xeon(R) Gold 5118+Tesla P100	56	26	131.53	1
<u>5</u>	540.94	Keldysh Institute	Titan_Keldysh	60	25	114.68	1
<u>6</u>	445.92	George Washington University	Colonial	58	20	122.18	1
<u>7</u>	243.42	CODE@TACC	Monty Pi-thon	78	26	35.825	32

The Big Data List

Rank	MTEPS/W	Site	Machine	G500 rank	Scale	GTEPS	Nodes
<u>1</u>	177.45	IBM Moscow MSU Alex Kolganov	IBM Power8+ Tesla P100	77	30	41.7	1
<u>2</u>	112.41	Alex Kolganov	PowerfullServer	92	30	16.3	1
<u>3</u>	66	Alex Kolganov	IBM POWER8+	100	30	13.2	1
<u>4</u>	62.93	Kyushu University	GraphCREST- SandybridgeEP- 2.4GHz	-	30	31.325	1
<u>5</u>	61.48	Kyushu University	GraphCREST- SandybridgeEP- 2.4GHz	-	30	28.614	1
<u>6</u>	51.95	Kyushu University	GraphCREST- Huawei	70	32	59.9	1
<u>7</u>	48.28	Kyushu University	GraphCREST- Sandybridge-EP- 2.7GHz	-	30	31.95	1

The Future of the List

- **Next list: Nov. 2019 (SC19)**
 - Submission same as Graph500
- **Submission details:**
 - Through Graph500, provide output data and energy information, or power trace
- **Watch** <http://www.graph500.org/>
- **Thanks for Support:**
 - Thanks to Anton Korzh and the Graph500 Executive Committee

Backup