

SPEC Research Group

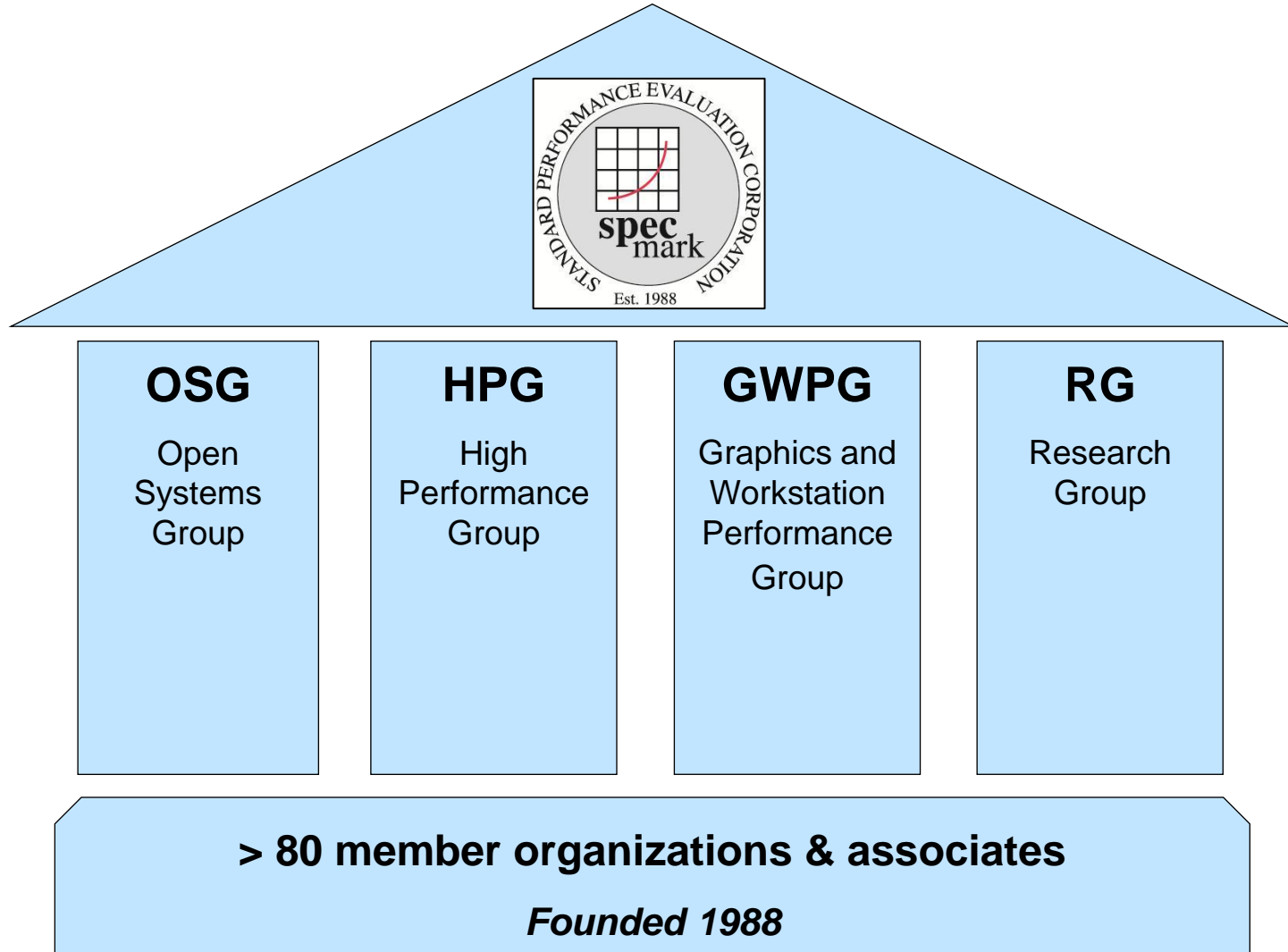
An Overview

Kai Sachs, Samuel Kounev





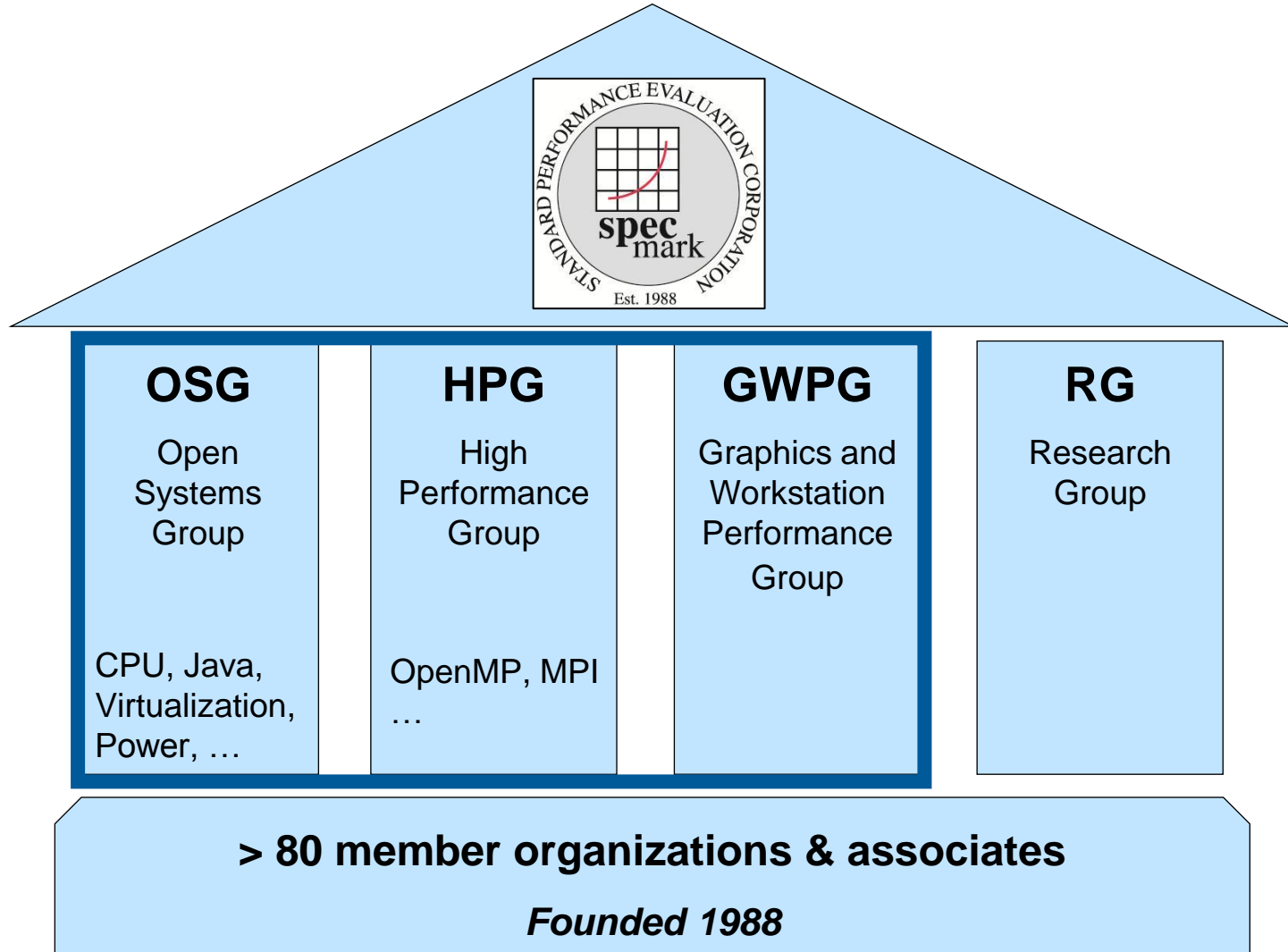
Standard Performance Evaluation Corporation





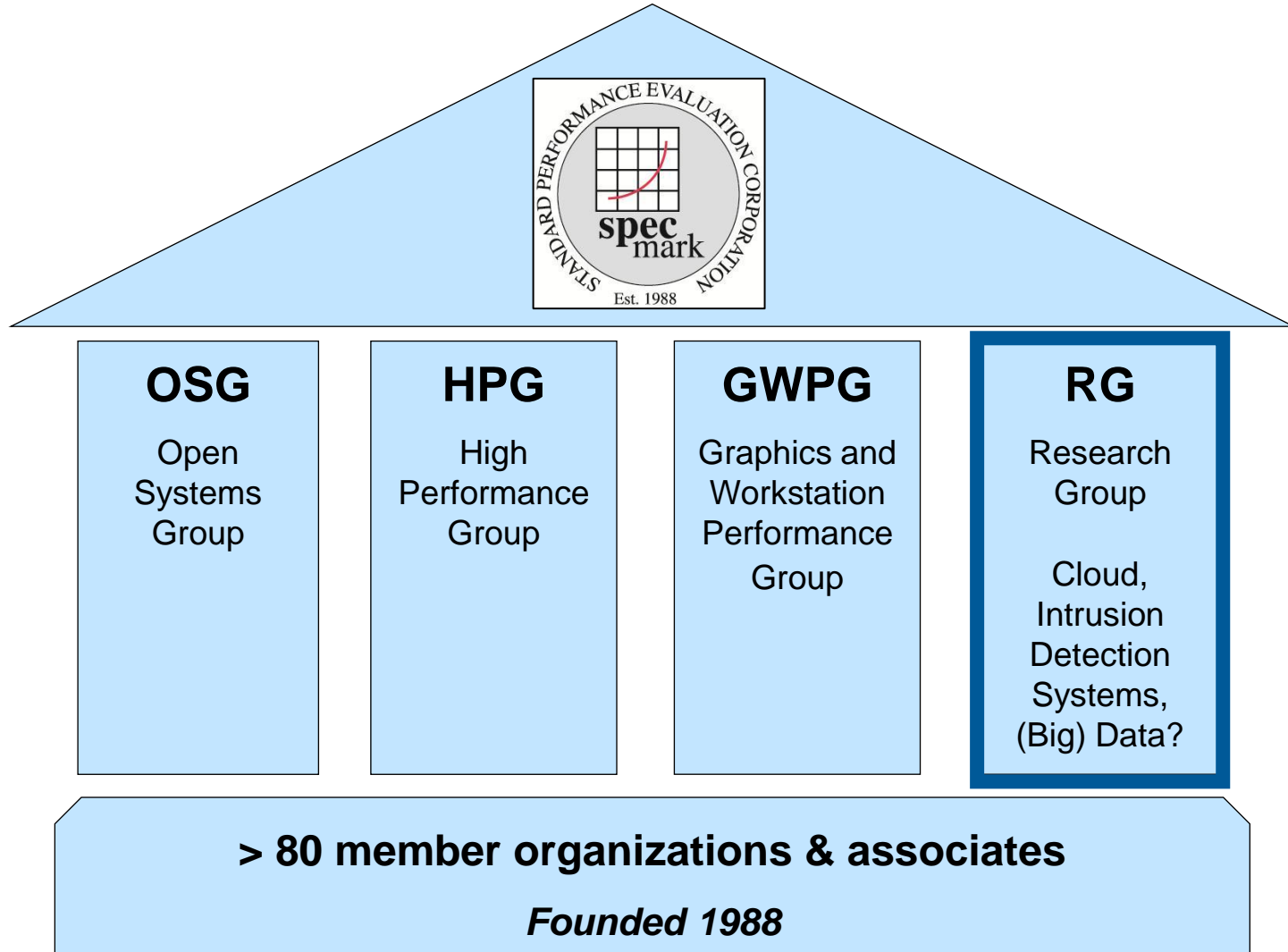
Standard Performance Evaluation Corporation

Development of Industry Standard Benchmarks





Standard Performance Evaluation Corporation Research Platform





Mission Statement

- Provide a **platform for** collaborative research efforts in the area of
 - Quantitative system evaluation and analysis
- *Scope:* Computer benchmarking, performance evaluation and experimental system analysis in general
- Provide metrics, (research) benchmarks, methodologies and tools

Performance

Performance in a broad sense:

- **Classical performance metrics**
Example: response time, throughput, scalability, efficiency, and elasticity
- **Non-functional system properties** *under the term dependability*
Example: availability, reliability, and security



Activities of the SPEC Research Group

- Working Groups
 - **RG Cloud**
 - **Intrusion Detection Systems (IDS) Benchmarking**
 - *In discussion: Big Data Working Group*
- Portal for all kinds of performance-related resources
 - Repository of peer-reviewed tools, experimental data & traces
- Organization of ACM/SPEC ICPE conference series (& others)



ICPE

ACM/SPEC International Conference
on Performance Engineering

Joint Meeting of WOSP/SIPEW



Selected Peer – Reviewed Tools



Faban - A performance workload creation and execution framework



Kieker - Application Performance Monitoring & Dynamic Software Analysis

FINCoS

FINCoS - Framework for Performance Evaluation of Event Processing Systems

The IDS Benchmarking Working Group

Chair: Marco Vieira

Vision: “... to foster and facilitate innovative research in **computer system and network intrusion detection**, with special attention given to benchmarking intrusion detection systems in virtualized cloud environments...”

Topics of Interest:

- Security- and performance-related IDS benchmark metrics
- Workloads based on vulnerability and attack injection
- IDS benchmarking methodologies and methods
- Performance attack signatures

The Cloud Working Group

Chair: Alexandru Iosup



Vision: “Develop new *methodological elements* for gaining deeper understanding not only of **cloud performance**, but also of **cloud operation and behavior**, through diverse quantitative evaluation tools, including **benchmarks, metrics, and workload generators.**”

Topics of interest

- Novel cloud properties (elasticity, performance isolation, dependability...)
- Non-functional system properties
- Classical performance-related metrics (response time, throughput, scalability...)

Hot right now

- Milenkoski, Iosup, Kounev, Sachs, Rygielski, Ding, Cirne, and Rosenberg (2013) ***Cloud Usage Patterns***. SPEC-RG-2013-001.
- **Cloud Benchmarking survey: metrics, tools, use.** In work

Big Data: *Ongoing Activities* Towards a Standard Benchmark

Workshop on Big Data Benchmarking

- May 8-9, 2012 in San Jose, CA
- December 17-18, 2012 in Pune, India
- *July 16-17, 2013 in Xian, China*
- ‘Incubator’ for Big Data standard benchmark(s) for industry



SPEC Research Group

- New working group focusing on Big Data is discussion
- Focus on research questions

SPEC OSG

- Big Data as part of a cloud benchmark



WBDB 2012 Report: Setting the Direction for Big Data Benchmark Standards

C. Baru, M. Bhandarkar, R. Nambiar, M. Poess, T. Rabl, TPCTC: 2012, collocated with VLDB2012

Report on Cloud Computing to the OSG Steering Committee

Technical Report, SPEC Open System Group, Cloud Computing Working Group. 2012.

Big Data Working Group @ SPEC RG

Potential Topics

Data categories

- Structured, unstructured and semi-structured; events & streams; graphs; geospatial, retail, astronomy & genomic; ...

Big Data (Benchmark) scenario & metrics

- Realistic use-cases & workload mixes
- Classification schema

Research Benchmarks

Data generation

- Real world traces & synthetic data

How can we collaborate?

Co-location of Workshop on Big Data Benchmarking & ACM/SPEC ICPE 2014 in Dublin next March

Establish a Big Data Working Group @ SPEC RG

Why?

Overlapping community, no need for two groups working on the same topics, SPEC organization, infrastructure & resources...

Thank you



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