



A New Era in Technical Computing Powerful. Comprehensive. Intuitive

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HPC and IBM have long history driving research and government innovation

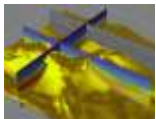
- Traditional use cases continue to grow



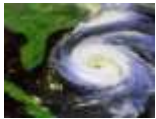
The universe is analyzed



Medical research is conducted

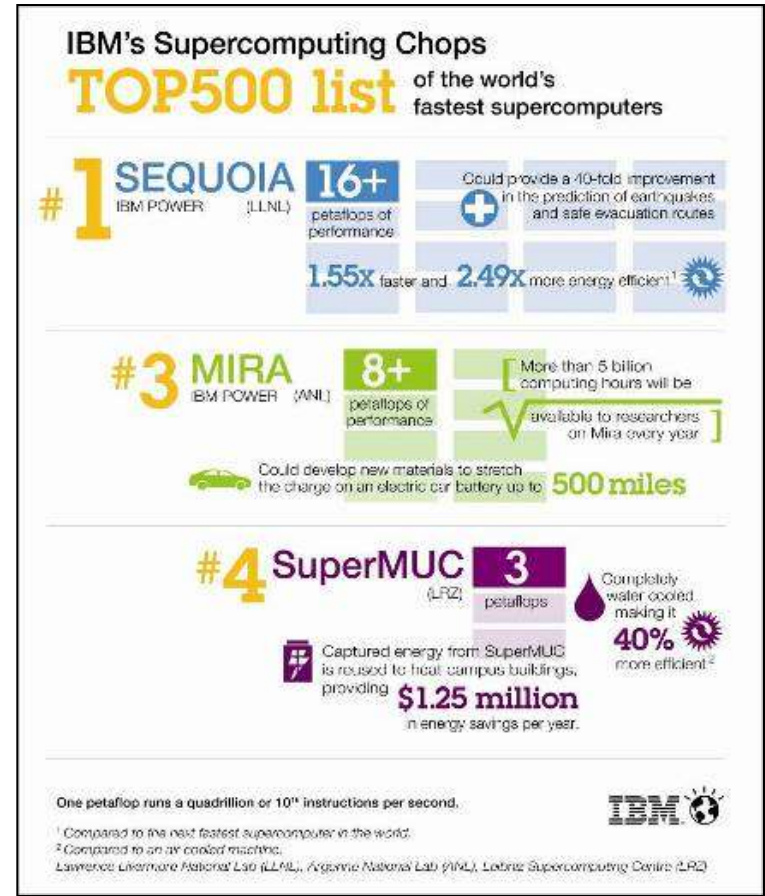


Oil is discovered



Weather is forecasted

- Long Top500 list- Sequoia was 1.5x faster than the previous #1
- Largest number (213) including largest in US and Europe and most energy efficient

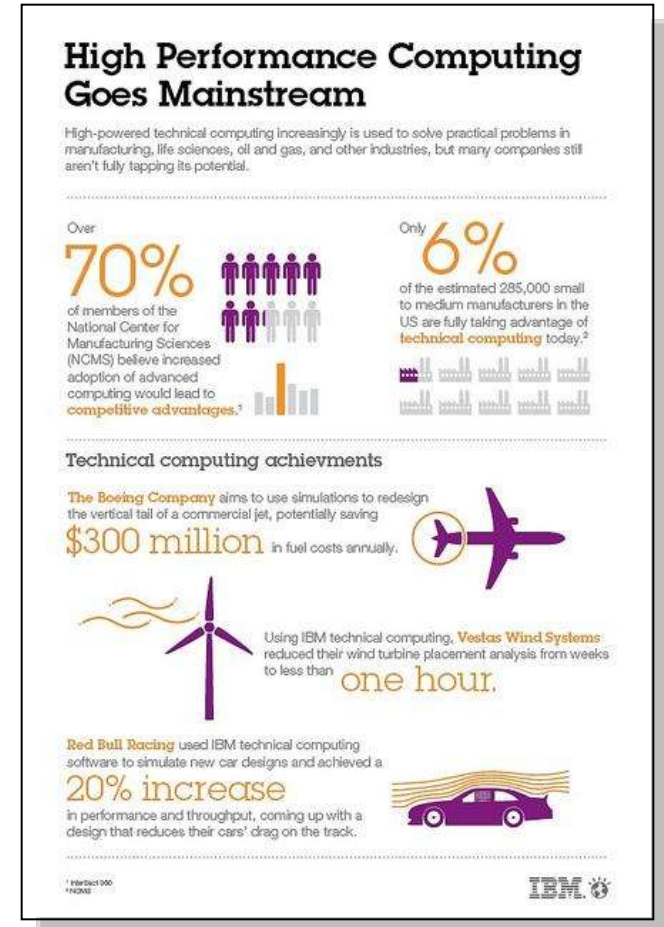


Source: [Top500 list](#), June 2012

Not just for science anymore, but mainstream business innovation

Accelerate time to business results, reduce costs, and gain competitive advantage

- Business applications require more compute capacity, data management and IT agility
 - Modeling
 - Simulations
 - Analytics (explosion of data)
- 2012 - IBM acquired 'Platform Computing'
- Need for scale-out, workload optimized systems – compute and data intensive



IBM expanding from Supercomputers to mainstream Technical Computing

Technical Computing

Supercomputing

Solve grand challenge problems cost effectively

- **Government organizations**
- **R&D, Higher-Ed**
- **Gov. Lab officials, Program Dir.**
- **Direct; Select business partners**

Mainstream Technical Computing

Accelerating applications, reducing cost with high-performance infrastructure

- **Large enterprise, mid-market clients**
- **FSS, Auto/Aero, Life Sciences**
- **LOB, CIO, VP IT Strategy, IT Mgr**
- **Business Partners(VAD,VAR), Direct**

Enterprise Computing

- **Transactional systems / operational (accounting, HR, finance, ...)**
- **Driven by RAS: reliability, availability, serviceability**
- **Slow adoption of new technologies, algorithms, and approaches**

Trends driving mainstream Technical Computing growth

Market Trends

Increased competitive pressures to bring better products to market faster

Explosion of data available to make better decision making

Increased need for flexibility and agility

Lower total cost of ownership solutions / ready to deploy



Technology Trends

Unceasing demand for more compute capacity and more complex environments (e.g., accelerators, heterogeneous)

- Rise of big data clusters and programming models
- Convergence compute and big data

- Clusters → Grids → Clouds
- Integrated workload and infrastructure management

Integrated bundles of software and hardware focused on ease of use

Trends driving mainstream Technical Computing growth

Technology Trends

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IBM Strategy

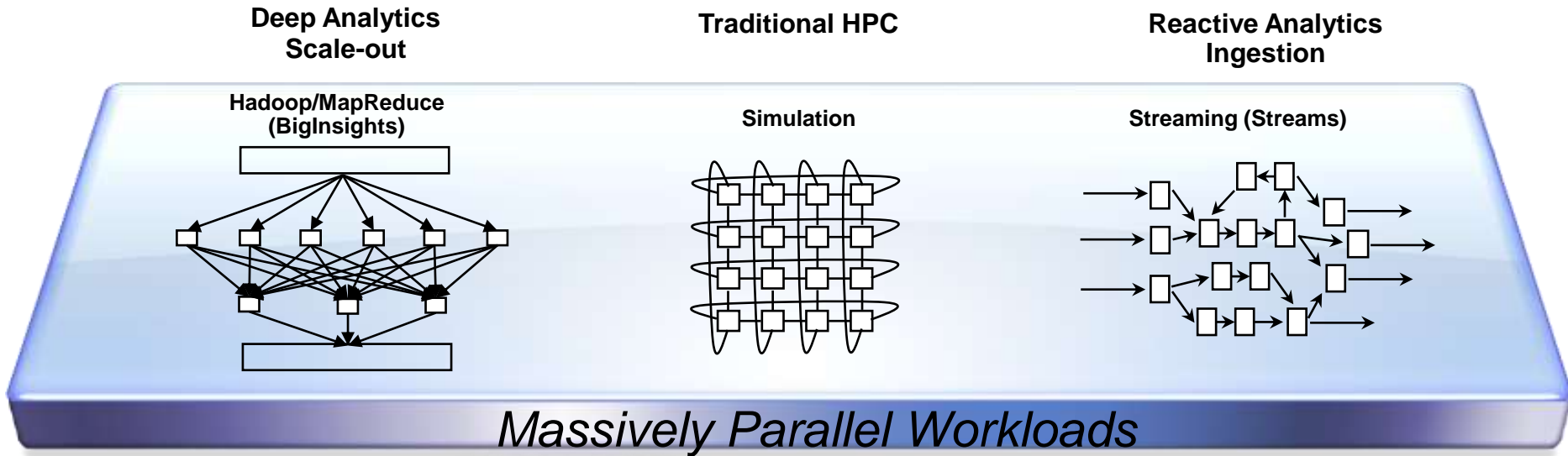
Offer Management software and systems able to embrace complexity, accelerate application performance and decrease costs

Integrate big data, storage, compute, and file management on a shared infrastructure for high performance and scalability

- Workload-driven dynamic cloud infrastructure management
- Private and hybrid cloud capabilities

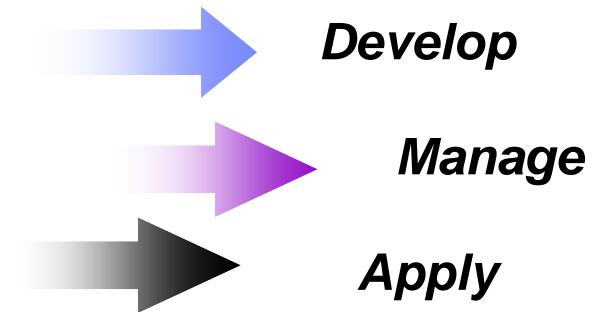
Integrated solutions optimized for verticals

Growth of Big Data in Technical Computing



IBM's Proven Scalable Software Infrastructure

- Advanced Application Development Environment
- Workflow Optimized Runtime
- Flexible Resource Management
- Robust / Reliable Systems Management
- High Performance File System
- Better End User Experience



IBM Technical Computing comprehensive portfolio uniquely addresses supercomputing and mainstream client needs



Power Systems™
Engine for faster insights



PureSystems™
Integrated expertise for improved economics



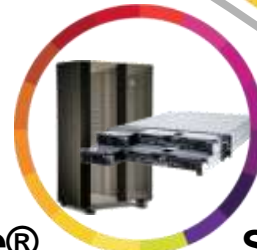
System x®
Redefining x86



Technical Computing for Big Data



Blue Gene®
Extremely fast, energy efficient supercomputer



System x iDataPlex®
Fast, dense, flexible

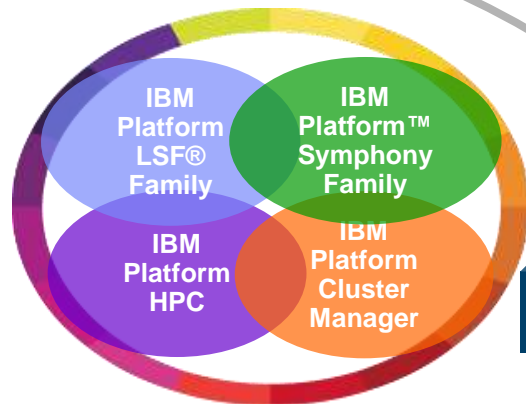


HPC Cloud



System Storage®
Smarter storage solutions

Parallel Environment



xCAT

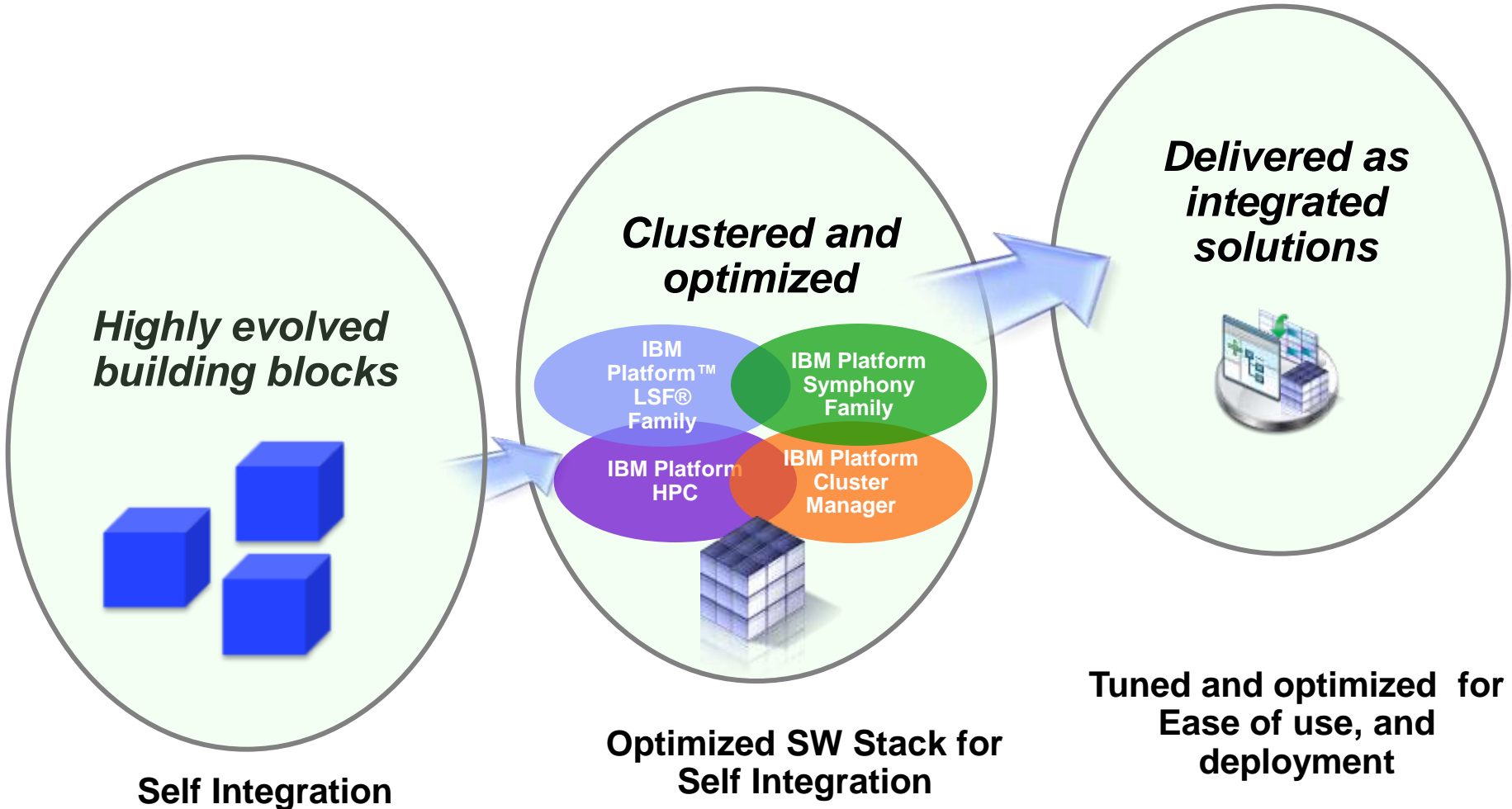


GPFS™ Storage Server
Big data storage



Intelligent Cluster™
Factory-integrated, interoperability-tested system with compute, storage, networking and cluster management

Comprehensive, integrated solutions – From self integration to fully integrated solutions – ready to run



Customer examples



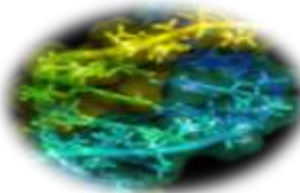
Leading Formula 1 race team

- Complex simulations and analysis with short time frames and strict regulations on cluster size
- Ease-of-use, application license optimization, high IT productivity



Large global financial services provider

- Market analysis, pricing and risk analytics/ compliance for 200+ applications with low average IT utilization
- 14 business units sharing grid across 4 data centers



Leader in market driven innovation and science

- Global research for HPC, big data and analytics with dynamic compute and Hadoop clusters
- Highly secure HPC cloud shareable across domains



Leading major aircraft manufacturer

- Complete aircraft design and simulation across global teams
- Reducing time to market with highly automated workflow driven processes, application license optimization, heterogeneous shared services and optimal job placement

Thank you!

