

What's new at Parallel Scientific

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Parallel Scientific



- Founder: by Peter Braam (Red Hat, Lustre, SUN, Xyratex,...).
- Vision:

“Exploit unique opportunities in combining knowledge of programming languages, mathematics and HPC with cloud and hardware domain expertise.”



Parallel Scientific timeline

2009 “Hello World!”

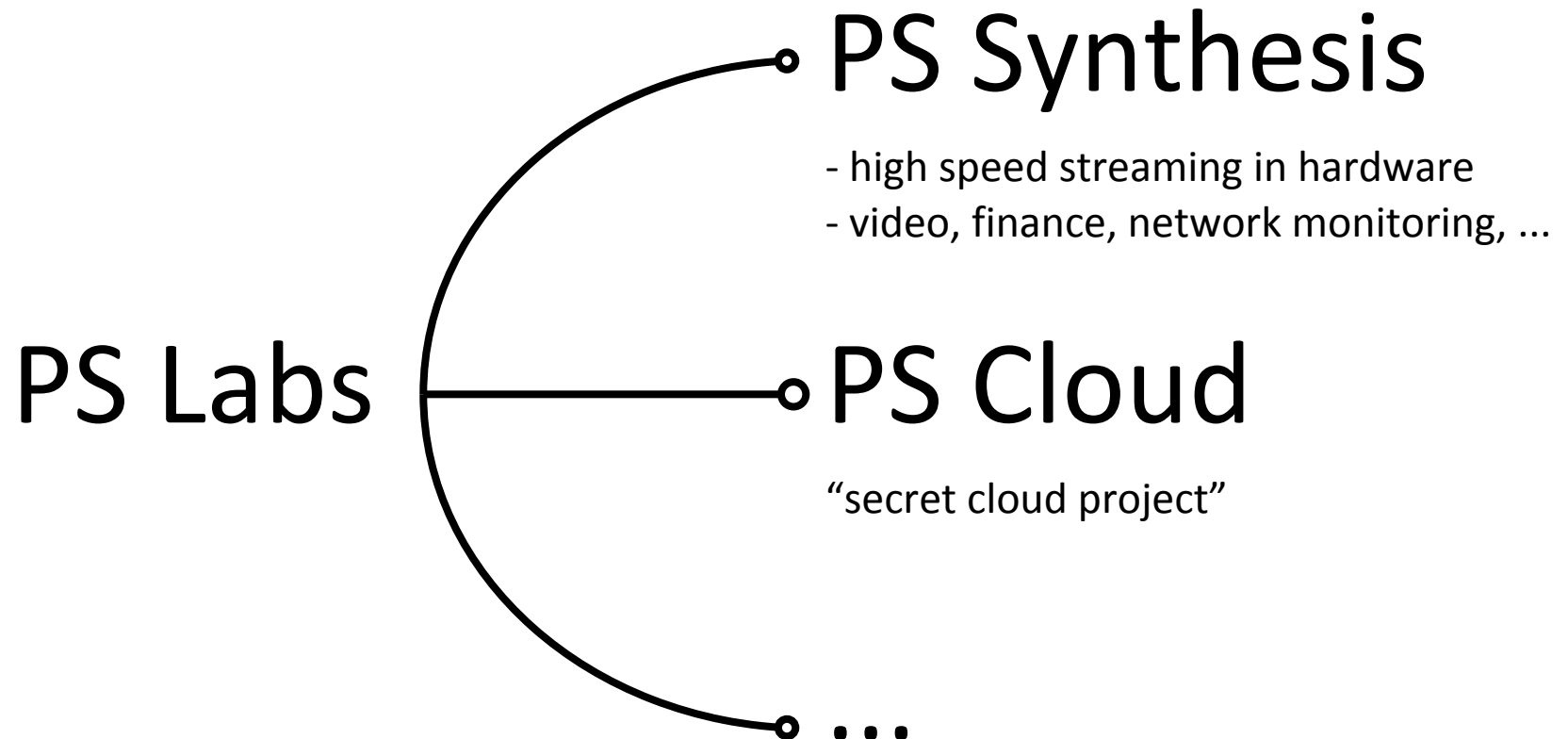
2010 Radically new cluster architectures

2011 Exa-Haskell proposal

2012 SpinDrift toolchain for FPGA programming

2013 High availability for exascale
Hardware streaming analytics

PS Labs spin-offs



Our methodology

- Identify problem domain
- Formulate domain specific languages
- Implement runtime for DSL
- Optimize, exploiting commonality.

Our technology

- Fast MPI-like framework for Haskell.
- DSL's for hardware programming
→ *non hardware experts can program FPGA's.*
- IP cores for high speed stream analysis
 - risk management
 - network events monitoring
 - sensor data aggregation
 - video switching
- Main problem area: **real-time analytics**

The way we see the future

- Hardware increasingly exporting its inherent parallelism to the software.
- Increasingly heterogeneous hardware resources.
- Hardware circuit just a computation with fixed shape.
- Software needs to survive many generations.
- **Key to efficient utilization:**

Make the cursor between hardware and software adjustable, given fixed codebase.