Thomas Patrick Downes

Skills

- Management of computing support teams
- Public speaking at variety of technical levels
- Identity management via SAML federation
- Translating user needs into engineering requirements
- Leading migrations to cloud-based solutions
- Cloud infrastructure on Amazon/Google/Azure
- Computing infrastructure for researchers
- Management of regulated environments
- Technical support for writing award proposals
- Large-scale capital budget management (>$1M)

Experience

2019–present **Professional Services HPC Cloud Consultant**, *Univa Corporation (Chicago, IL)*

- Lead Professional Services team to help customers adopt Univa Grid Engine in public clouds using Navops Launch, a rules-based automation engine for scaling UGE clusters.
- Led migration of major life sciences company to using Launch for its entire HPC needs.
- Active in full sales lifeycle to understand requirements and draft statements of work.
- Develop general and custom documentation and presentation materials for customers.
- Create Infrastructure-as-Code solutions that can be maintained by customers.
- Lead customer demonstrations in series of Meetups to promote Navops Launch.

2015–2019 **Senior Scientist**, *Center for Gravitation, Cosmology and Astrophysics (Milwaukee, WI)*

- Supervise a team that provides services in support of LIGO research including software integration/containerization, distributed access to data, wikis, and database portals.
- Contributed to the development of several grant applications, including a successful NSF award for a $900k upgrade of NEMO computing cluster.
- Designed upgrade to NEMO computing cluster, including adoption of CephFS.
- Manage group's relationship with campus information technology staff to ensure that its infrastructure and security requirements are met.
- Lead LIGO's relationship with developers of the HTCondor cluster orchestration software.
- Migrated on-premises web portal to highly-available solution using Kubernetes on AWS

2012–2015 **Associate Scientist**, *Center for Gravitation, Cosmology and Astrophysics (Milwaukee, WI)*

- Lead team responsible for computing services in support of LIGO and CGCA researchers.
- Provide Icinga-based monitoring / alerting solution for LIGO's computing services.
- Responsible for managing maintenance and operations budget for the group's data center, including electrical/cooling systems and all contractor supervision and bid solicitation.
- Responsible for the execution of the NEMO cluster, a 6,000 CPU-core & 50,000 GPU-core computing resource on which to detect and analyze multiple sources of gravitational waves.
- Designed, installed, and maintained group's VMWare platform and storage area network.
- Developed expertise in configuration automation, virtualization, large-scale storage technologies and SAML federated identity management.
- Serve on collaboration committees and working groups to establish computing policies.

2002–2011 **Graduate Student**, *The University of Chicago* and **Research Associate**, *Caltech*

- Design, build, and operate instruments employing low-temperature superconducting quantum interference detectors (SQUIDs) and their electronic readout systems.
- Extracting astrophysically significant results from data sets that are dominated by noise.

Education

2002–2009 The University of Chicago, Kavli Institute for Cosmological Physics
PhD Physics, MS Physics

1997–2002 University at Buffalo – The State University of New York
BS Physics, BS Computer Science, minor mathematics *summa cum laude*

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