NIWA's recent procurement of the largest supercomputer in New Zealand

8 minute Thursday preview – details upon request

Multicore World 2025 – 20 February

Climate, Freshwater & Ocean Science

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Refresher: Generation 1 and 2 Supercomputers

1999 Cray T3E *(#89 in a closet)*

2011 IBM p575

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2017 / 2018 – Generation 3

2017 Cray XC50 'Kupe' *- Tamaki, Auckland*

2018 Cray XC50 'Maui' & Cray CS400 'Mahuika' *- Greta Point, Wellington*

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2023 RFP principles and results

Area	Details	Success?
data first !	data flow/management has been our biggest Generation 3 headache	yes
public cloud / hosted ?	both options evaluated fairly and fully, dual recommendations	yes
operational weather	needed a primary site, and somewhere else to run in case of disaster	yes
20 petabytes – media?	LTO-9 in 2025, LTO-10 when available. Set to grow to 120 petabytes.	yes
one or many vendors?	moving away from single vendor, to a team/family approach	yes
ARM / AMD / Intel ?	Unified Model==X86. Full benchmarking exploration of X86 options	yes
interconnect ?	InfiniBand favoured because of commonality. 100 GbE also vital.	yes
big step / multiple steps ?	technical approach simple, budgeting and approval cycles less so	no
expandability ?	design for additions to compute, storage, archive, network	yes
avoid vendor lock-in ?	adhering to standards will allow some flexibility	partial

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August 2024 Ministerial Visit & Announcement

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Hosted System choices, and plans for the first year

Archive
- Xenon (Australia) primary vendor
- Spectra Logic – LTO tape archive units
- Versity – archive management
- Object store – 2 petabytes

Hosting site
- CDC Silverdale - primary
- CDC Hobsonville - secondary

Compute & Storage - HPE
- Cray XD225v liquid-cooled nodes
- AMD ‘Genoa’ processors, 96-core
- NDR200 InfiniBand – island topology
- VAST storage (1.35 raw PB in 1U !)

First into production
- Operational Weather (4x per day)
- Later 2025 - move to ensemble approach

Quickly following
- NIWA research

Not far behind
- REANNZ users

Later in 2025
- MetService joins as a division of NIWA

Research Sector
- GNS combines with NIWA to form the new Earth Sciences PRO (Public Research Organisation)

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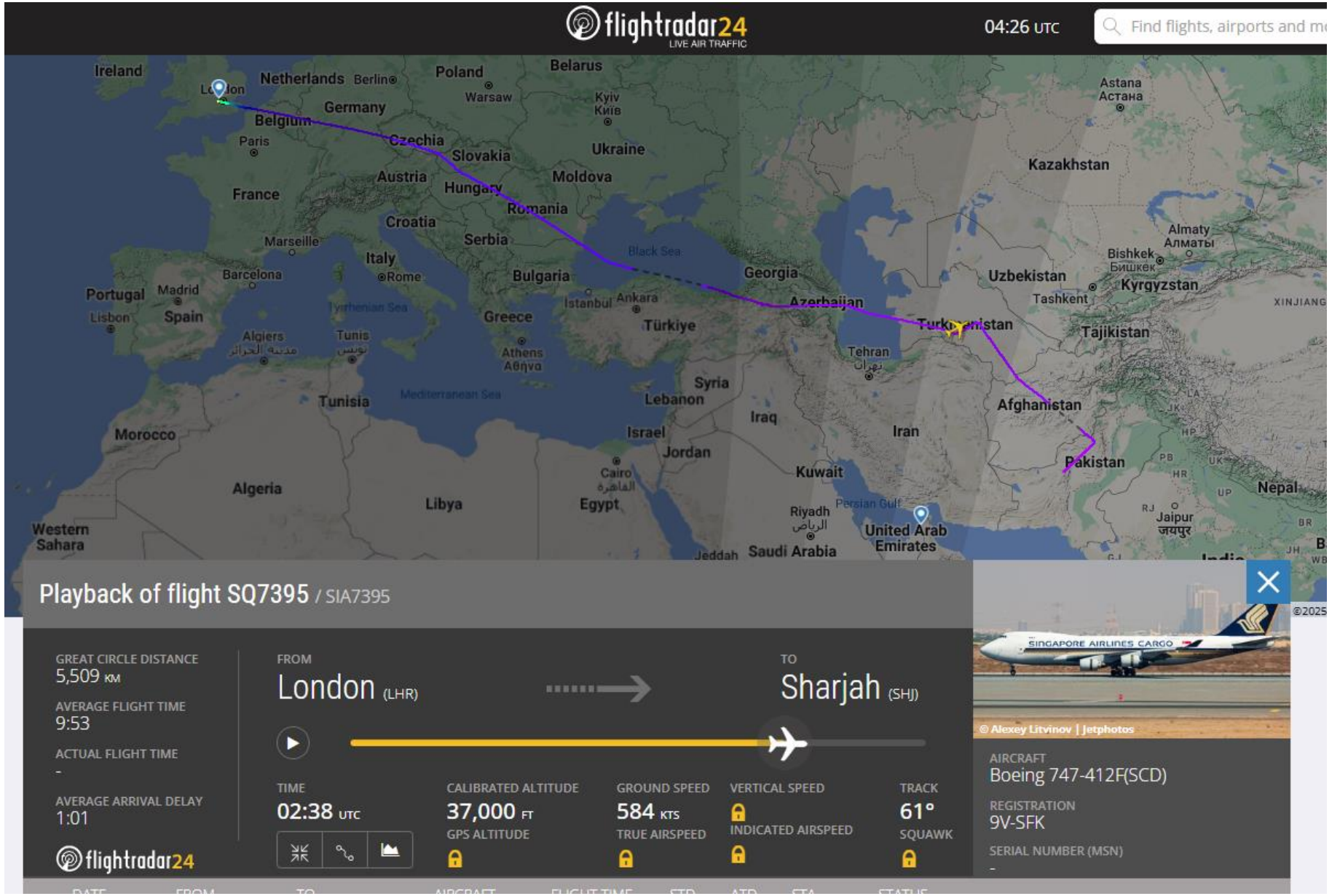
Initial deliveries – TFinity ECO archive – November 2024

Wednesday arrival of liquid-cooled racks in New Zealand



Introducing (in May?) Cascade, and Rapids

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