CSIRO Advanced Scientific Computing

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CSIRO Advanced Scientific Computing
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CSIRO

CSIRO

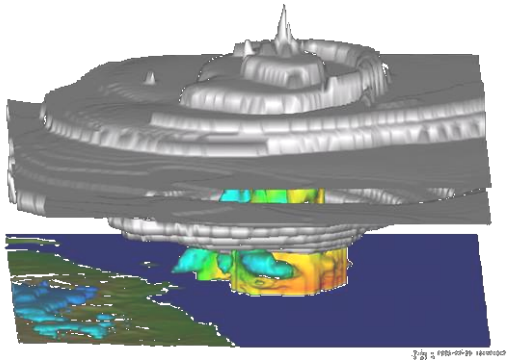
- **CSIRO**
- **CSIRAC (1949)**
- **CSIRO ASC – growing service**
- **Providing access to:**
  - High performance computing and data storage facilities
  - A large range of commercial and open source software
  - User application and software support

CSIRO ASC Facilities – Access

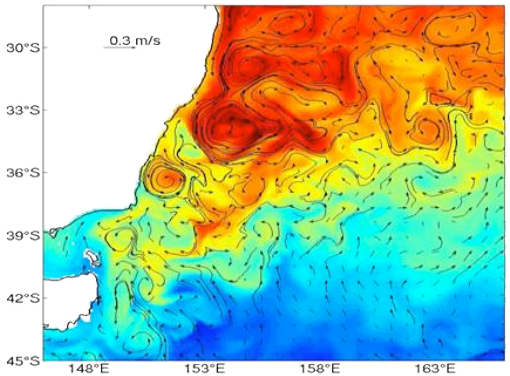
- **HPCCC (CSIRO and Bureau of Meteorology)**
  - 25% share of NEC SX-6/TX7 system
  - Some access to Bureau Sun Constellation
- **SGI Altix 4700 – 128 cores, 500 Gbyte**
  - CSIRO Data Store host
- **IBM e1350 cluster**
- **NCI NF – 25% share – new Sun Constellation**
- **iVEC Altix, xe, petabye store**
- **QFAB share**
- **Other clusters**
- **Condor service**

Typical Applications

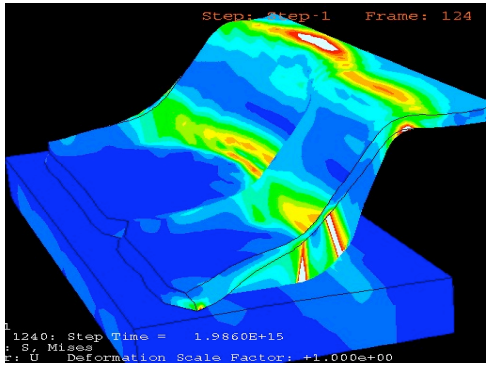
Climate & Weather

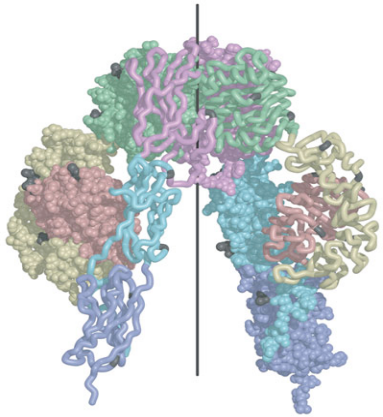


Ocean Forecasting

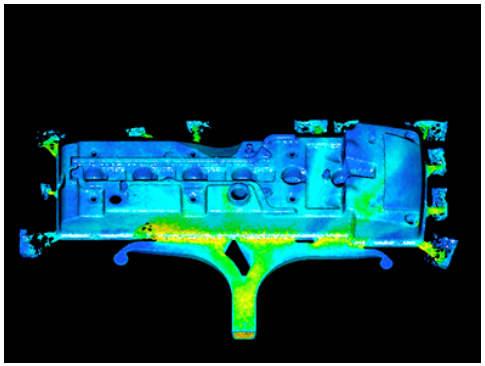


Geomechanics & Minerals





Protein Chemistry



Manufacturing

Fluids Animation

Research Users

- **Almost all CSIRO Divisions**
- **Large usage from CMAR – CAWCR**
  - Forecasting: weather, climate, ocean, hydrology, emergency response
  - Re-processing – high-quality datasets, climate analysis
  - Seasonal prediction
  - Hind-casts
  - Re-analysis
  - Climate Change: predictions and impacts

CSIRO Data Store

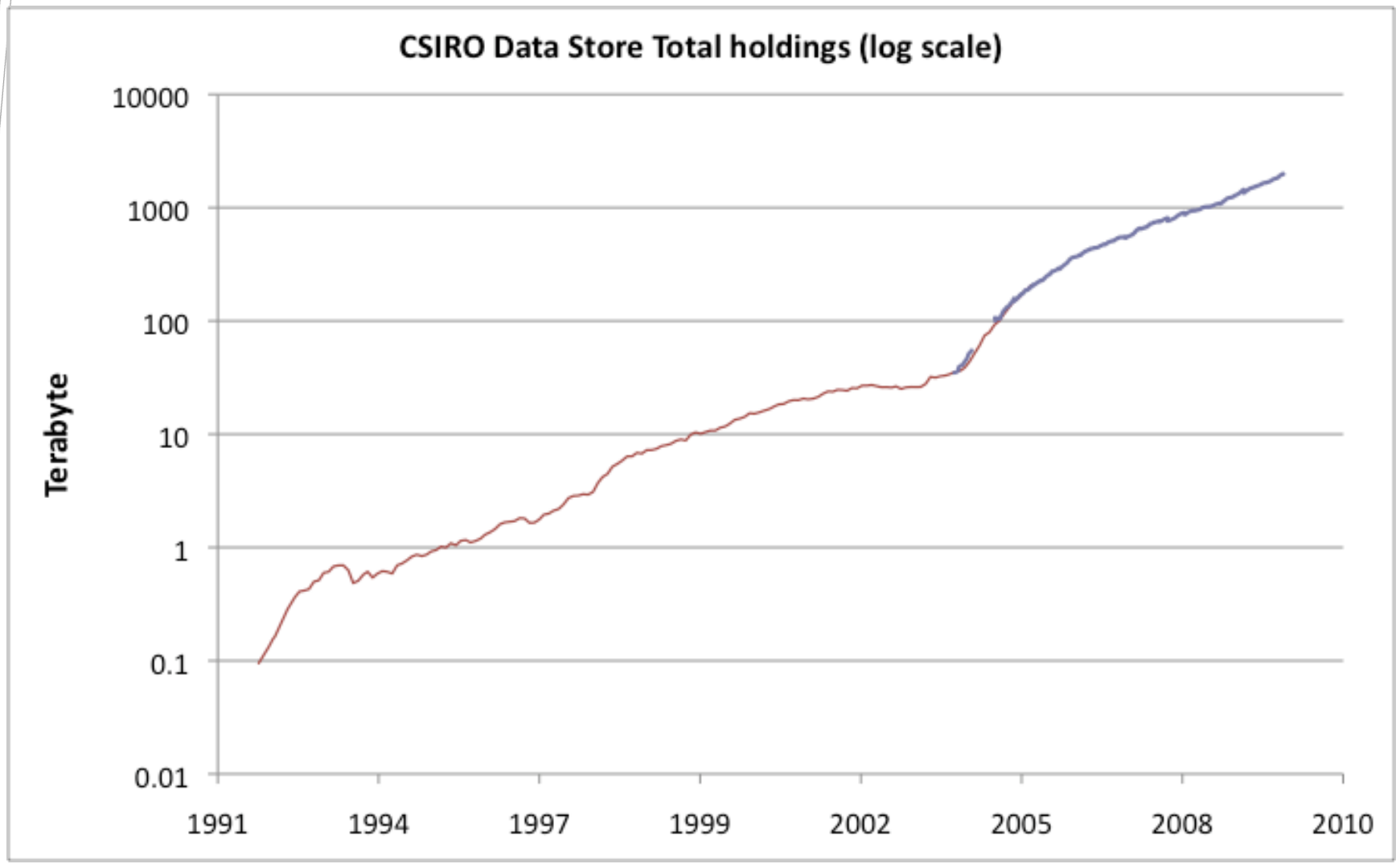
- **Login message:**

Welcome to the CSIRO SGI Altix 4700 system cherax running SLES10

- ***- the host for the CSIRO Data Store***
- ***- the host for data-intensive computing***
- ***- the host for large-scale shared-memory multi-processing***

- **Direct user access – the migrating file system is the $HOME area.**
- **Using DMF since 14 Nov 1991 – 3 Crays, 2 Altixes, 4 sites**
- **Annual growth rate of about 1.8**

CSIRO Data Store growth

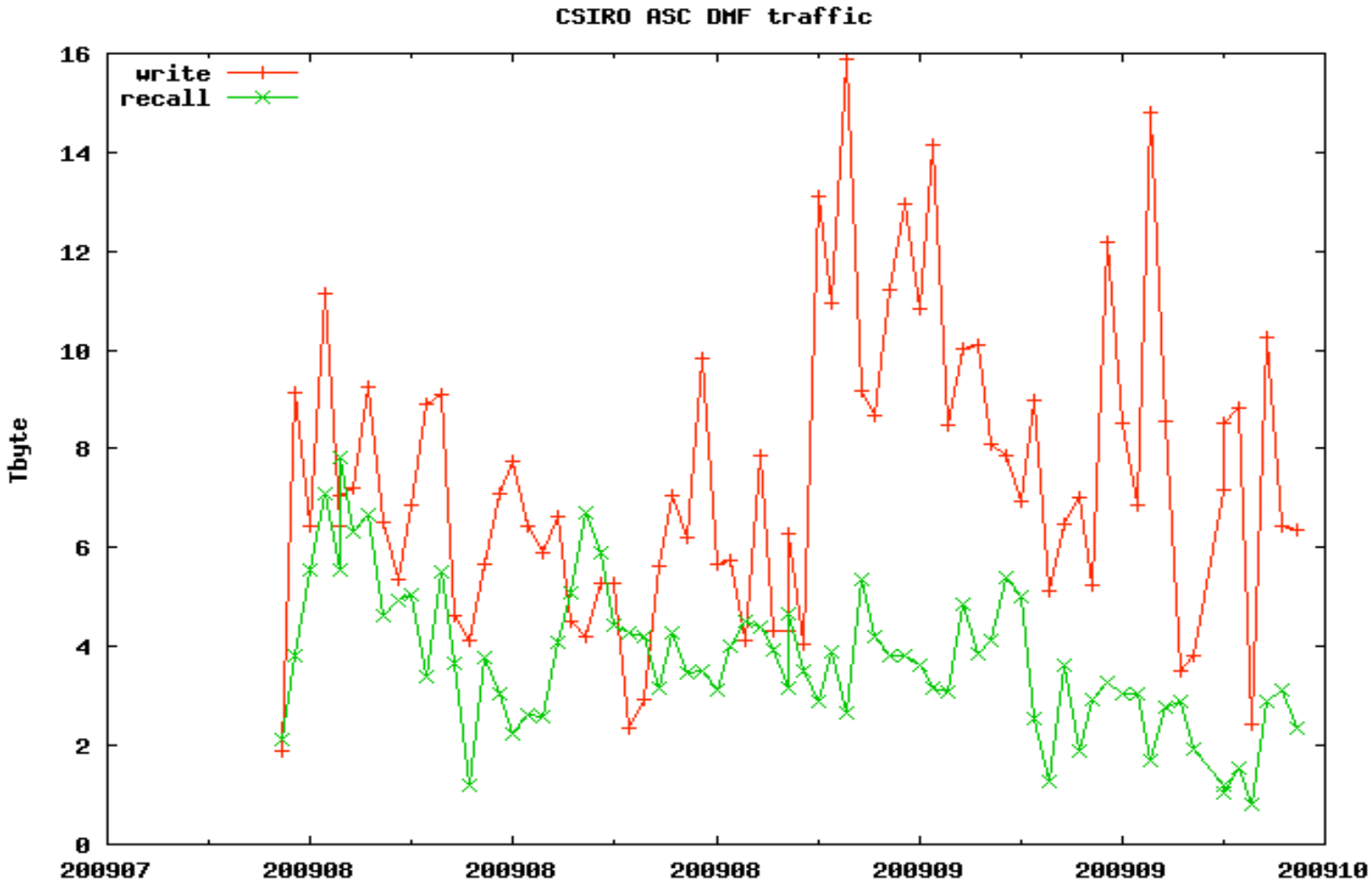


CSIRO Data Store

2009 Sep 28

File system	Disc size Tbyte	Inodes in use millions	Total Data Tbyte
/cs/datastore TP9700	6.6	16.2	986 X 2
/backup1 IS220	0.7	16.4	9.3 X 1
/backup2 IS220	0.7	18.9	Shared with above
/dmf/cache	12.6	0.08	

CSIRO Data Store traffic



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Thank you

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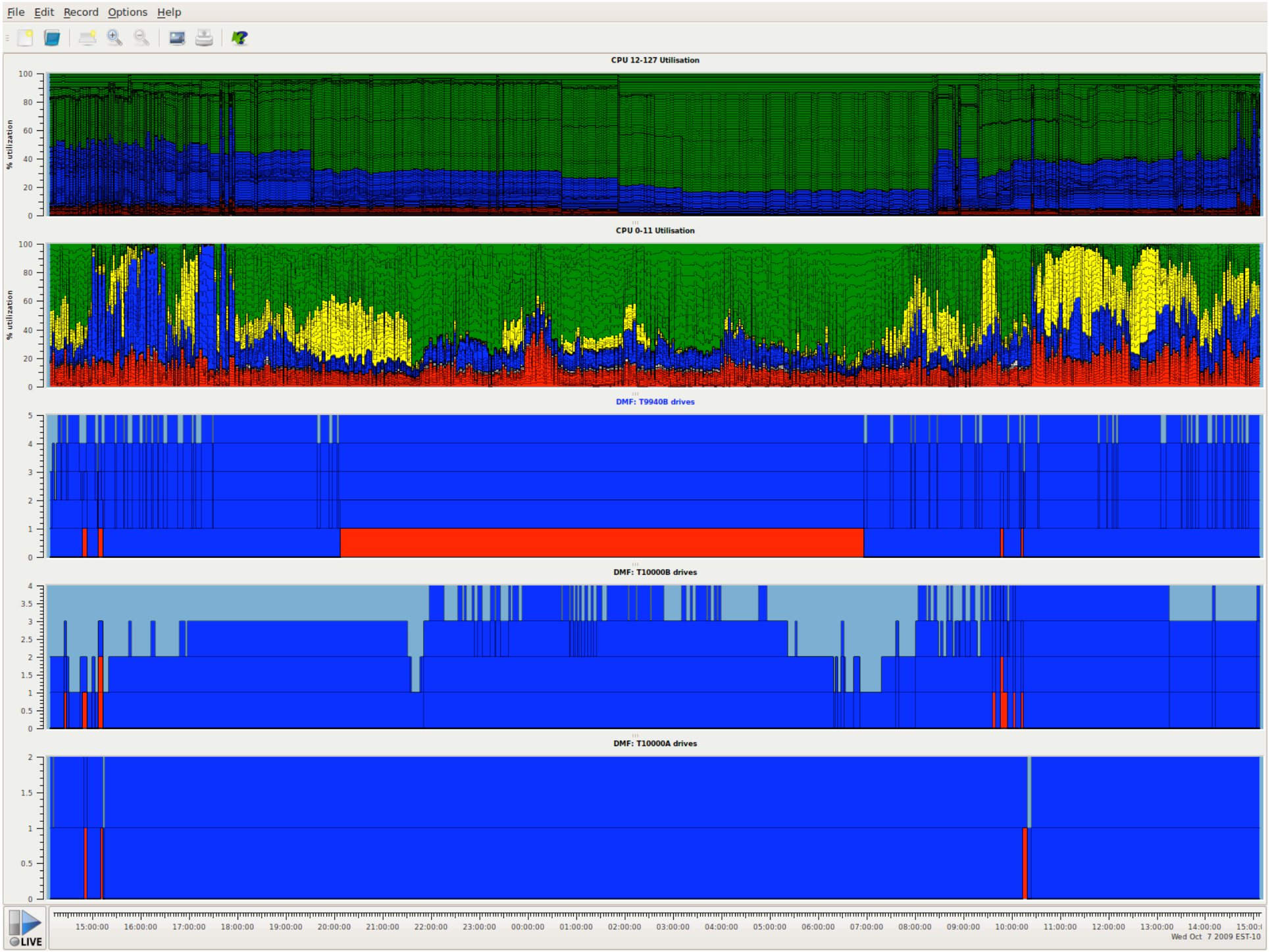
File Edit Record Options Help
CPU 12-127 Utilisation
% utilization
CPU 0-11 Utilisation
% utilization
DMF: T9940B drives
DMF: T10000B drives
DMF: T10000A drives
LIVE
15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00 00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00
Wed Oct 7 2009 EST-10