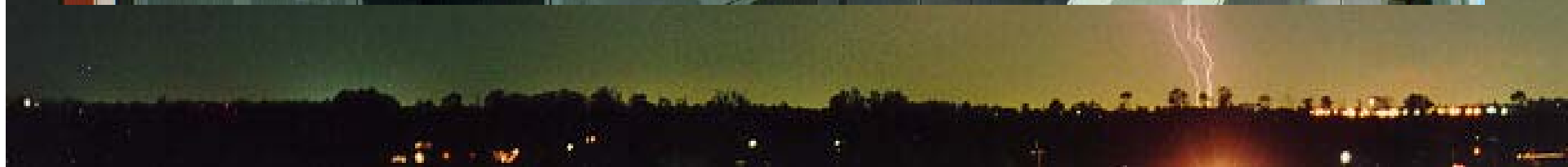


MSC - Scientific Computing Facility (SCF) Supercomputer Status



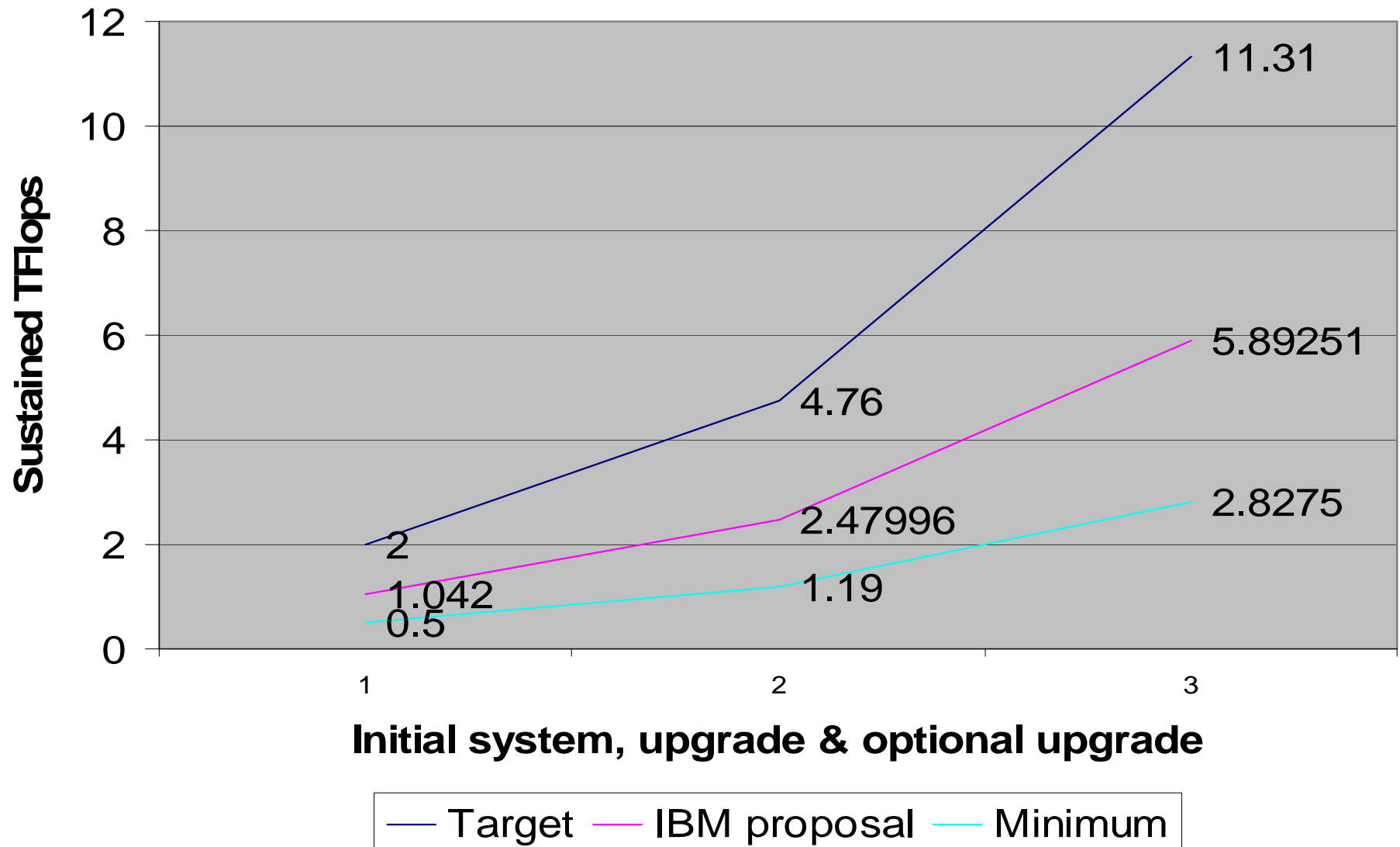
Photo: Jean Desrosiers



RFP/Contract Status

- ◆ The formal SCF RFP was released on March 22, 2002 and closed June 10, 2002. The bid was competitive (more than one bid was received).
- ◆ The technical and financial evaluation of bids were completed at the end of July 22, 2002. All bids were deemed compliant with all the mandatory requirements of the RFP. Bidders were classified in order of points awarded were 90% of the points were awarded for performance and 10% for price.
- ◆ The bidder with the highest number of points was IBM. Preliminary benchmark results were submitted by IBM in early August and successfully verified through a live benchmark conducted at their facilities on Sept. 9, 2002.
- ◆ A five year, \$42.5 million contract, awarded to IBM Canada, was approved by TB on Nov. 7 and was announced by PWGSC on Tuesday Nov. 12. The level of expenditures is the same as under the current contract.

IBM Committed Sustained Performance in MSC TFlops



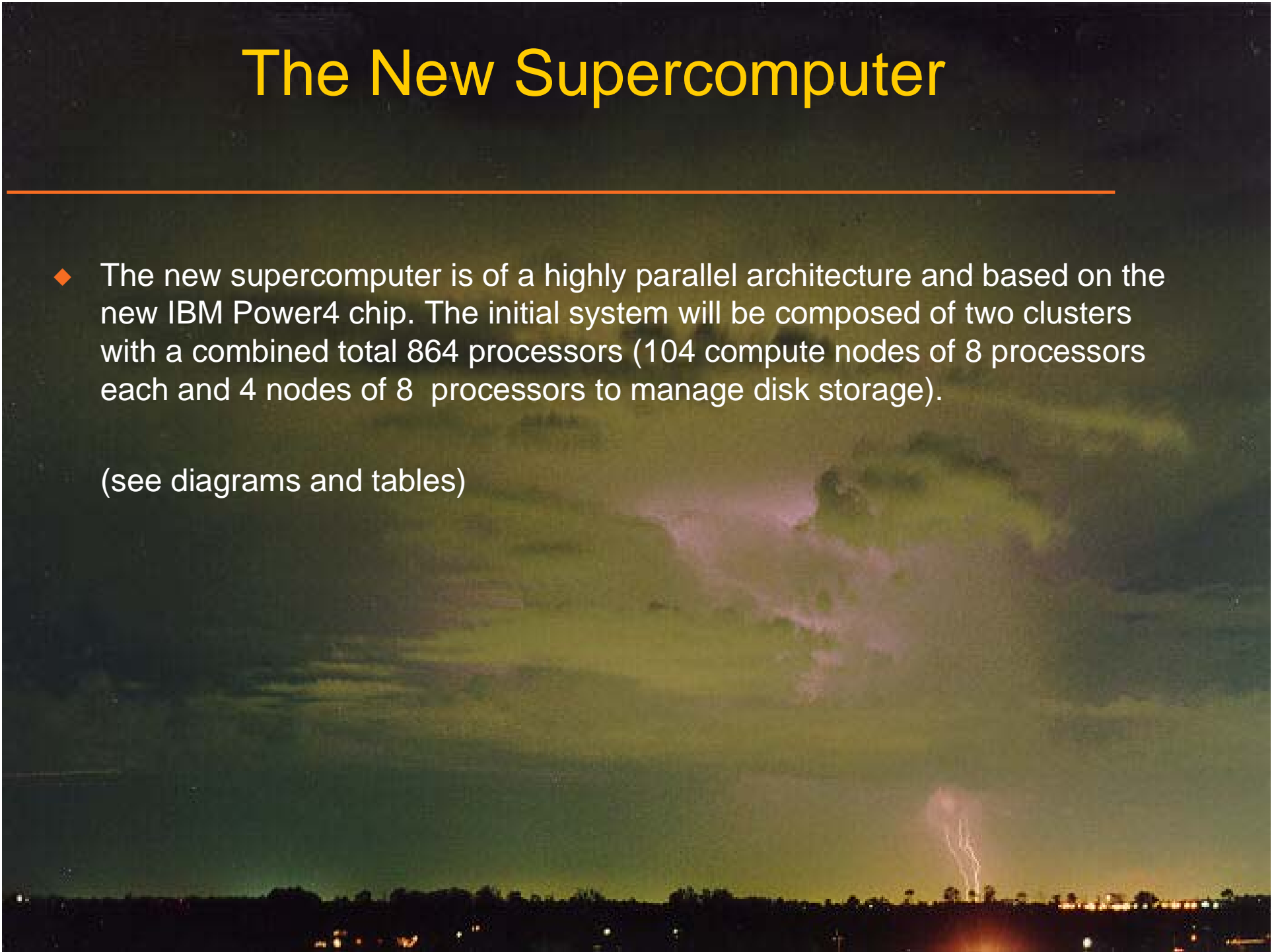
The New Supercomputer

- ◆ The contract calls for the delivery of an initial system which will have 2.5 times the sustained compute power of the current supercomputer (NEC SX-6).
- ◆ The first upgrade is scheduled 2 1/2 years later after acceptance of the initial system and will provide over 6 times the sustained compute power of the current supercomputer system.
- ◆ An optional 2 1/2 year extension, with upgrade, can be exercised by the MSC at the end of the 5 year period. This optional upgrade would provide over 15 times the sustained compute power of the current supercomputer system.
- ◆ Delivery of the initial system will begin in the Feb. 2003 timeframe and the complete system is expected to be in operation at the latest by the fall of 2003.

The New Supercomputer

- ◆ The new supercomputer is of a highly parallel architecture and based on the new IBM Power4 chip. The initial system will be composed of two clusters with a combined total 864 processors (104 compute nodes of 8 processors each and 4 nodes of 8 processors to manage disk storage).

(see diagrams and tables)



Detailed IBM proposal (Compute power)

Committed resources	Initial	Upgrade 1	Optional Upgrade 2
Nb. clusters	2	2	2
Nb. Nodes in clusters	64 in cluster 1 40 in cluster 2 4 for GPFS (108 total)	8 in cluster 1 4 in cluster 2 1 for GPFS	7 in cluster 1 4 in cluster 2
Nb. CPU per node	8	64 (32 for GPFS node)	NA
Peak Gflops per CPU	5.2 (1.3 GHz Power4 CPU)	NA	NA
Total Peak Tflops	4.3264	NA	NA
Total Sustained MSC Tflops (see Note 1)	1.042	2.48	5.89

Detailed IBM proposal (Infrastructure)

Committed resources	Initial	Upgrade 1	Optional Upgrade 2
Floor space requirements	1081 sq. ft.	Less than initial installation	Less than initial installation
Air-cooling requirements	799.1 kBTU (67 tons)	438.7 kBTU (37 tons)	386 kBTU (32 tons)
Power requirements (peak)	235.02 kW	128.73 kW	113.35 kW

Detailed IBM proposal (Resources)

Committed resources	Initial	Upgrade 1	Optional Upgrade 2
Memory per node (Gbytes)	16 (64 and 160 in last node of each cluster)	270 (200 and 430 in last node of each cluster)	Over 600
Total memory (Tbytes) on each cluster	1.072 and 0.784 (1.856 total)	2.36 and 1.51 (total 3.87)	NA
User memory (Tbytes) on each cluster	1.041 and 0.753 (total 1.814)	2.083 and 1.506 (total 3.589)	4.163 and 3.01 (total 7.173)
User storage (Tbytes)	8.736	15.48	4 X total memory (min. ++ 28.692)
Overhead storage (Tbytes)	7.633	19.2	25.3
No. switches and type	SP switch 2 (dual-plane multistage, Colony)	Federation	Federation or follow-on
Switch bandwidth per node (Gbytes/sec)	1 in each direction (2 X 500 Mbytes/s cards/node)	8 in each direction (4 X 2 Gbytes/s links/card per node)	NA

Schedules of Events for the Initial System (assumption that contract award was to be Sept. 1, 2002 and that Xmass does not exist)

Computer Access Assistance	Starting 2 weeks from date of contract award and ending upon acceptance.
Site Preparation Meeting	2 weeks from date of Contract award.
Installation Plan	2 weeks from date of Contract award.
System Acceptance Plan	4 weeks from date of Contract award.
Conversion Training	2 months prior to installation
System and Network Training	1 month prior to installation for basic training
Conversion assistance for priorities 1 and 2	Begins once the conversion training is completed and must be completed prior to system acceptance.
Help Desk Assistance	Starting 1 month prior to installation and ending at the completion of system acceptance.
Delivery of Initial System	120 calendar days from date of Contract
Installation of initial System	30 calendar days from date of delivery
Operational Training	After the installation but before final acceptance of the initial system.
User Training	Within a month following the initial SCF Installation.

Schedules of Events for the Initial System

Step 1 Physical Inspection	7 calendar days from completion of installation.
Step 2 Ready for Use	At the latest 180 days from date of delivery
Step 3 System Availability	120 calendar days from completion of Step 2
Step 4 Final acceptance of initial system	Completion of step 3

Training

- ◆ Conversion training (for early bird application conversion). Two 5 day sessions in Dorval & one in Downsview with 12-16 persons per session. Targeted for January.
- ◆ System and network training. One basic course followed later by one advanced course for 6 people. 3-5 day course. Target window between contract award and a few months after acceptance.
- ◆ Operations training. Two separate session , max 2 days per session for 16 operations staff. After installation.
- ◆ User training (general user community). A few weeks prior or after installation. A one day condensed version of the conversion training for 50 users in Dorval (two sessions), 25 users in Downsview and 15 in Victoria.

Conversion assistance

- ◆ Provision of a conversion system representing approximately 10 % of the initial system has been delivered and will be installed on site in the next 2 weeks (12 nodes, disks, an interconnect switch and a network switch)
- ◆ Help desk assistance - one month prior to installation until system acceptance (7 .M.- 7 P.M.).
- ◆ Application conversion (6 years experience min. in optimization, I/O, MPI...). One person two months prior to install through acceptance plus two persons starting one month after installation through acceptance.
- ◆ System software conversion (operating system, network, resource management, accounting...). One person starting at installation until acceptance

On-going Support

- ◆ All systems must achieve a minimum of 99 % availability.
- ◆ Remedial maintenance 24/7. 30 minute response time between 8 A.M. and 5 P.M. on weekdays. One hour response outside above periods.
- ◆ Preventive maintenance or engineering changes - maximum of eight (8) hours a month, in blocks of time not exceeding two (2) or four (4) hours per day (subject to certain conditions) .
- ◆ Software support. Capability for MSC staff to manage and install the SCF operating system software, tools and system modifications (fixes). Provision of emergency and non-emergency assistance, via on-site and/or remote staff and telephone and/or Internet communications, in troubleshooting and resolving software problems encountered by systems personnel, applications analysts and users.

Thanks

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User requirements committee:

Jean-Guy Desmarais....