CAPARMOR

CAlcul **PAR**allele **M**utualise pour l'**O**ceanographie et la **R**echerche

Phase 1 et Phase2

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IDM-RIC, IFREMER

Pôle de Calcul Intensif pour la Mer

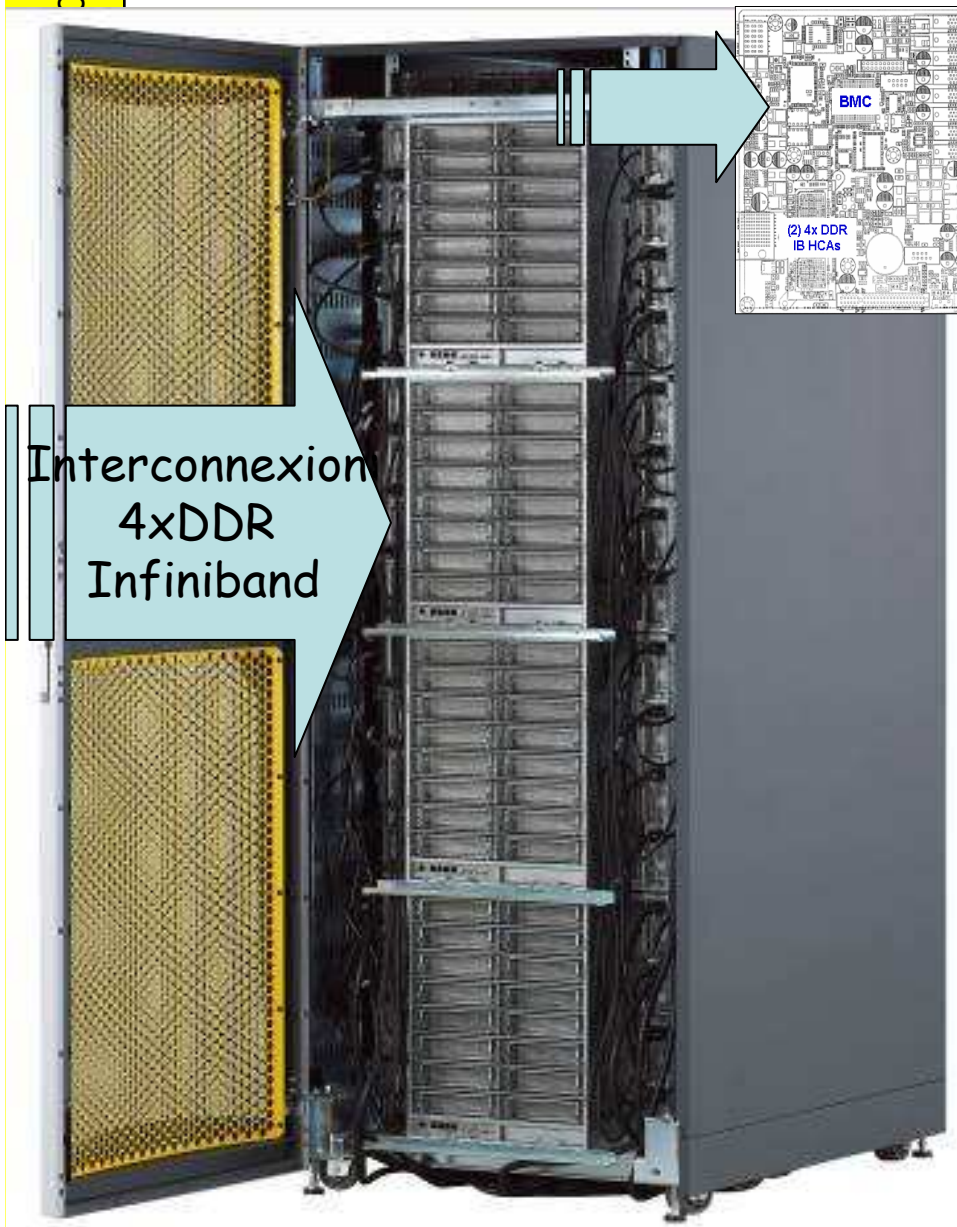
- Remplacement de Nymphea
  - Caparmor: phase 1 et phase 2
  - 10.2007: Caparmor phase 1
  - 01.2008: Adieu Nymphea…

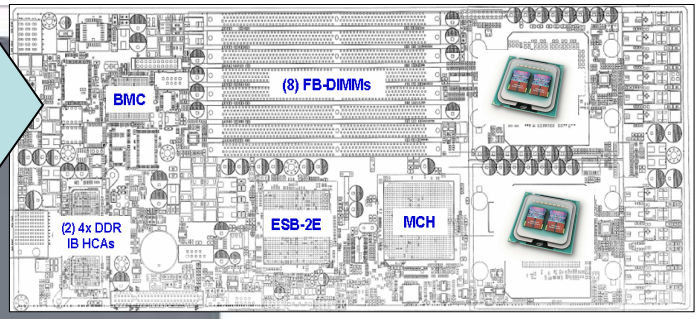
- Actualités de ‘Caparmor phase 1’
- Caparmor phase 1 à phase 2

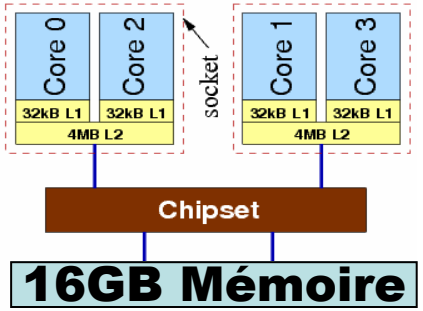
Nymphea->caparmor: phase1

	Cœurs	Flops /cœur	Mémoire	Disque
Nymphea	**44**	**2.5G**	**136Go**	**2To**
	x 5.8	x 4.8	x 7	x 7
Caparmor phase1	**256**	**12G**	**1To**	**14To**

Caparmor; phase 1







- 1 Nœud = 4 cœurs
  - Deux Dual-Core Intel® Xeon® processeurs 5160 , 3.00 GHz
- 64 Nœuds /rack

  = 128 CPUs/rack

  = **256 Cores/rack**
- 3Ghz/Cœur

  =12G Flops/Cœur

  =3T Flops/rack

Mémoire

- 16Go/Nœud = **1To/rack**

ICE:
dense, sans disque, moins des câbles

64 nœuds

2 nœuds

320 câbles /rack

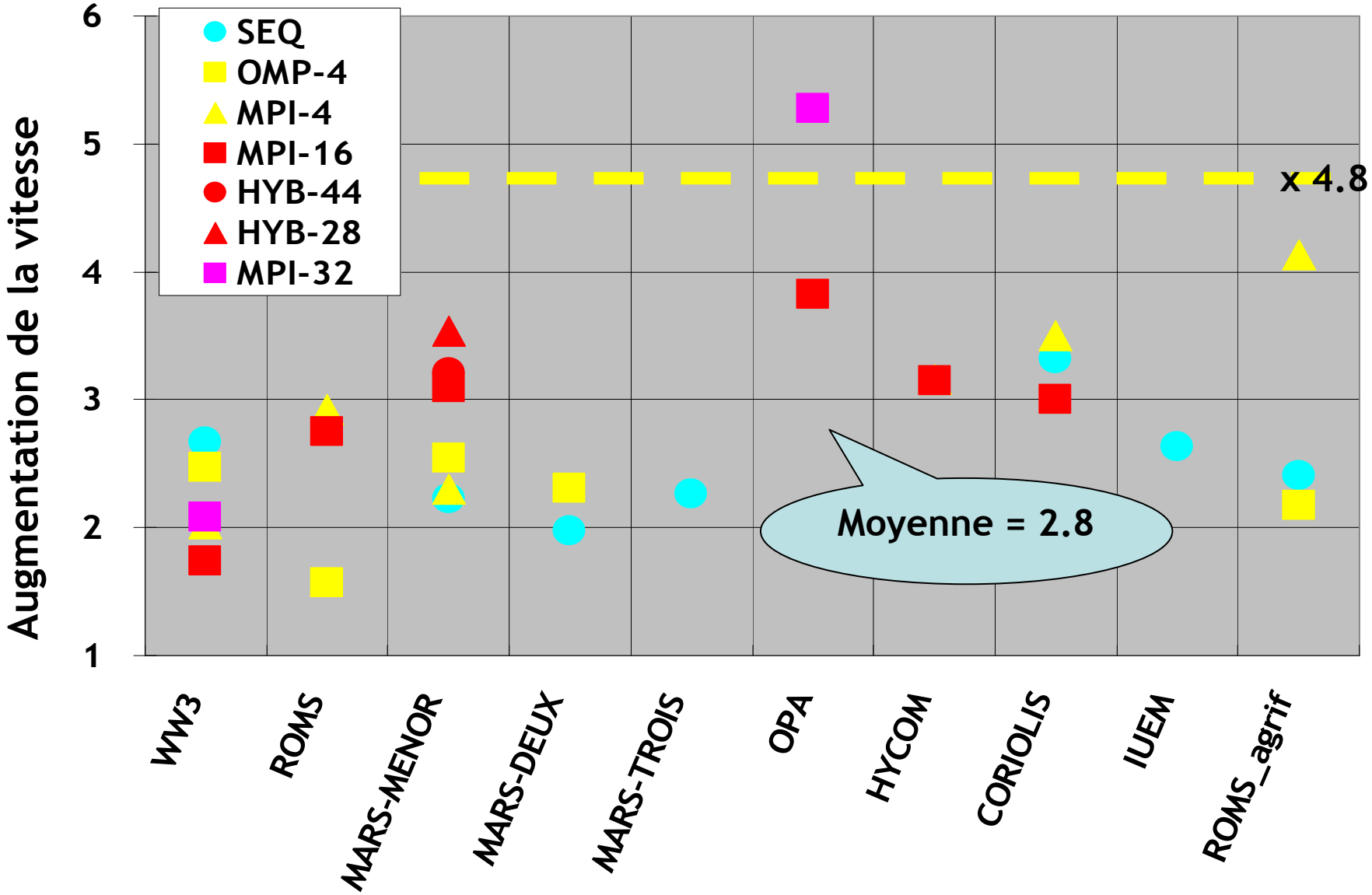
RIC assure vos calculs

- DATA
  - Caparmor: RAID 5, NAS SERVER
  - RIC: Time navigator.
- Power
  - Caparmor: Double power supply
  - RIC: UPS (Uninterruptible Power Supply) 1 h.
  - IFREMER: Groupe électrogène

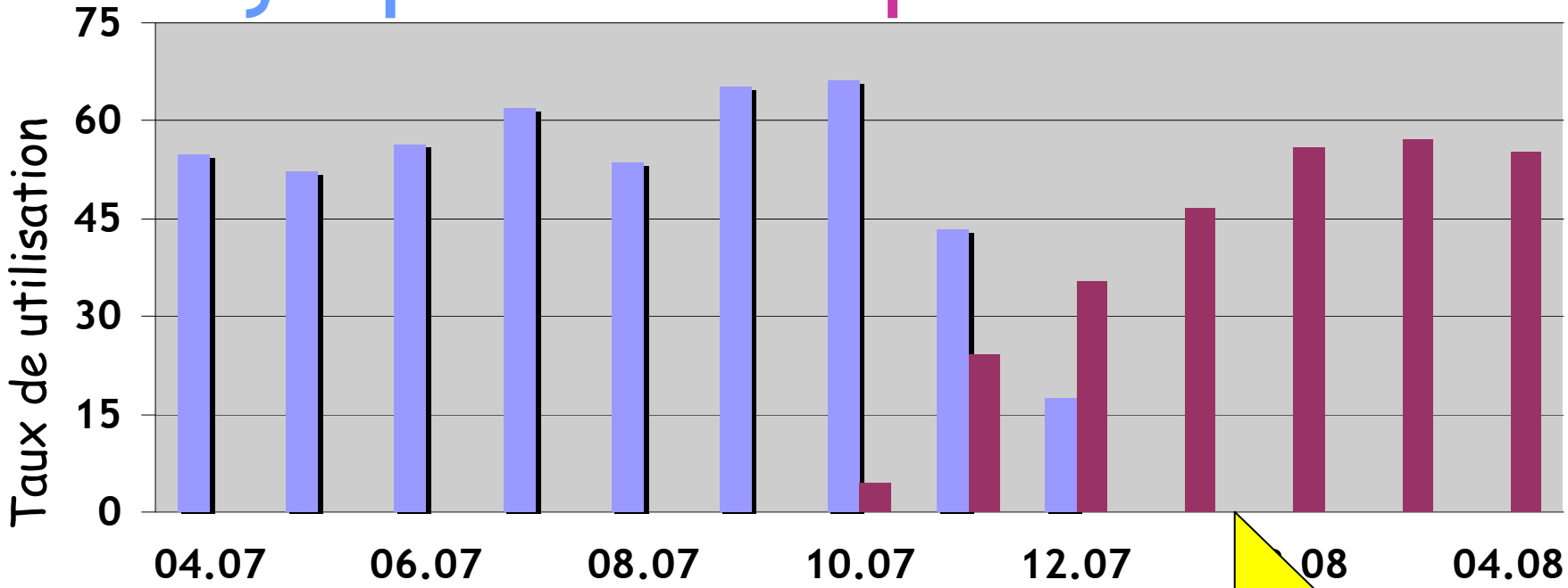
RIC assure vos calculs

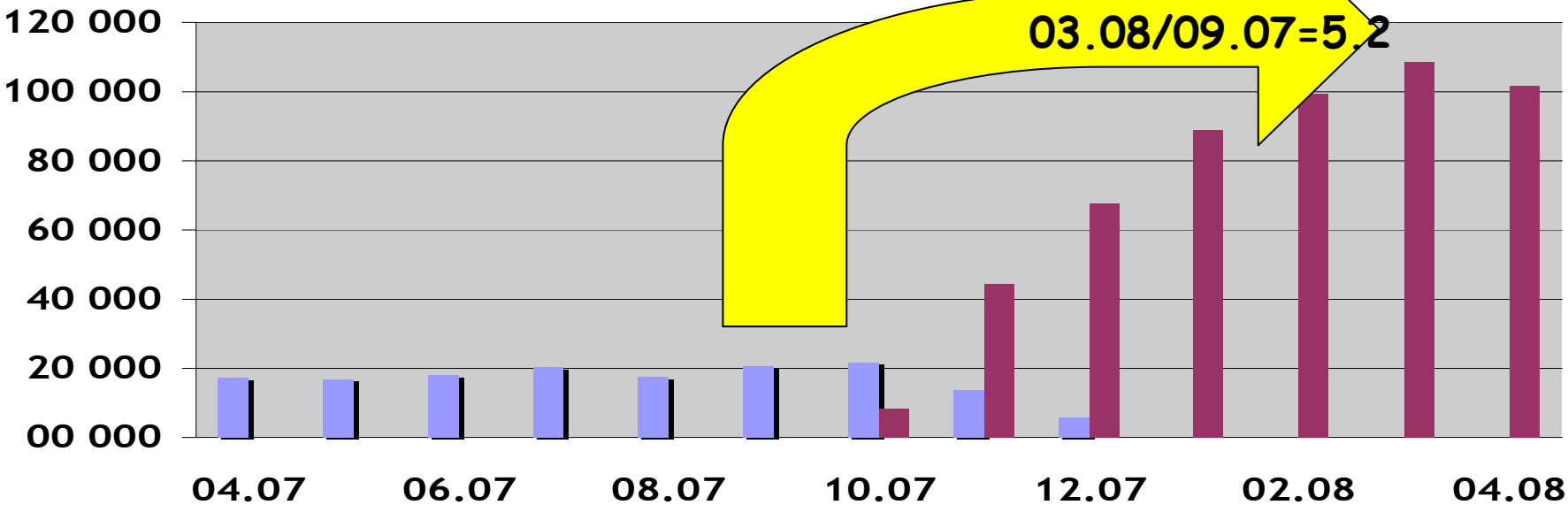
- Refroidissement
  - Caparmor: Group froids
  - RIC: Système doublé par circuit de l'eau glacé du IFREMER
- Monitoring
  - Caparmor: ESP, ganglia
  - RIC: Nagios
- Support aux utilisateurs
  - assistance@ifremer.fr
  - Ou directement

BENCH MARK: nymphea -> caparmor

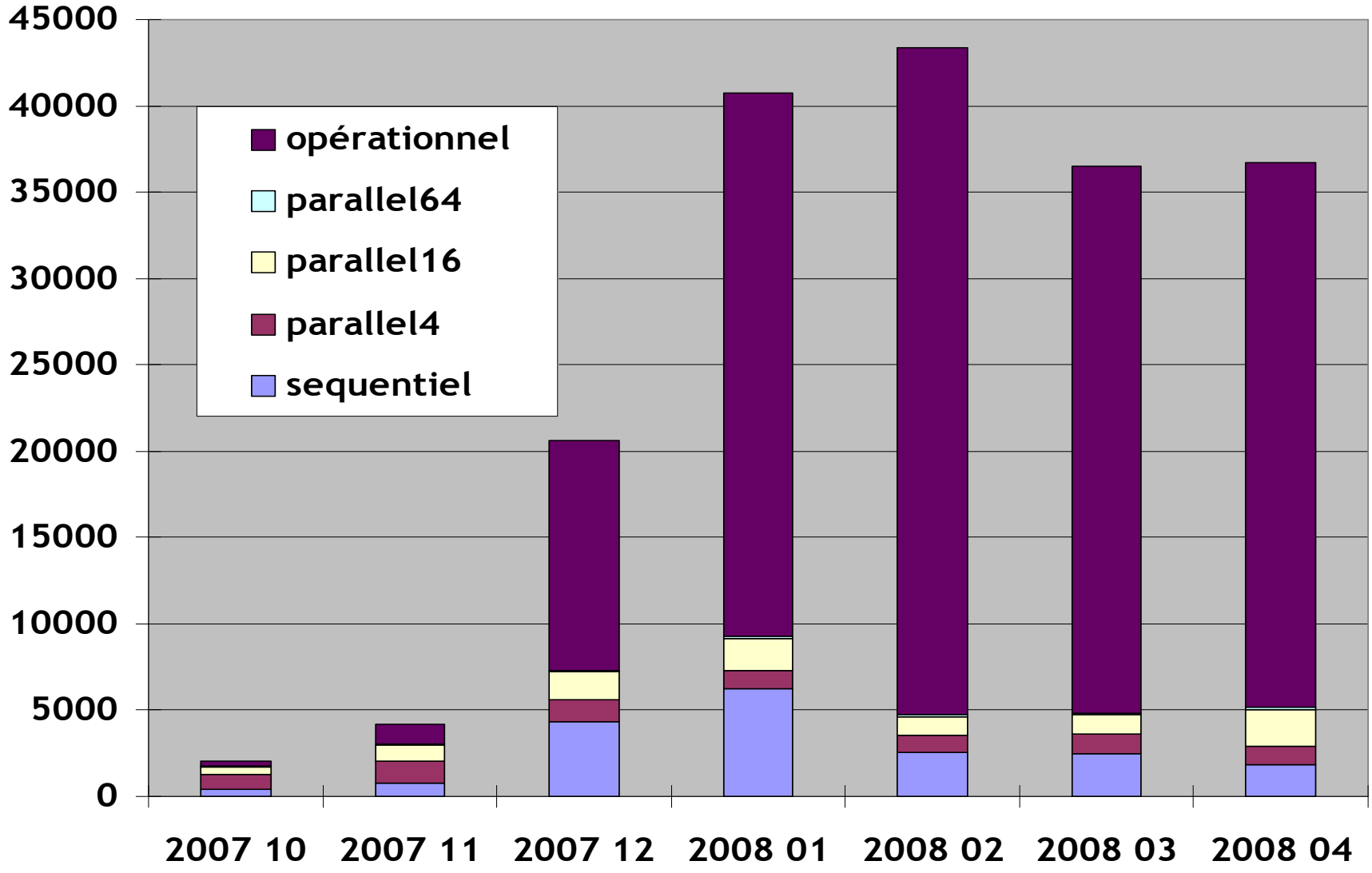


Nymphea -> Caparmor





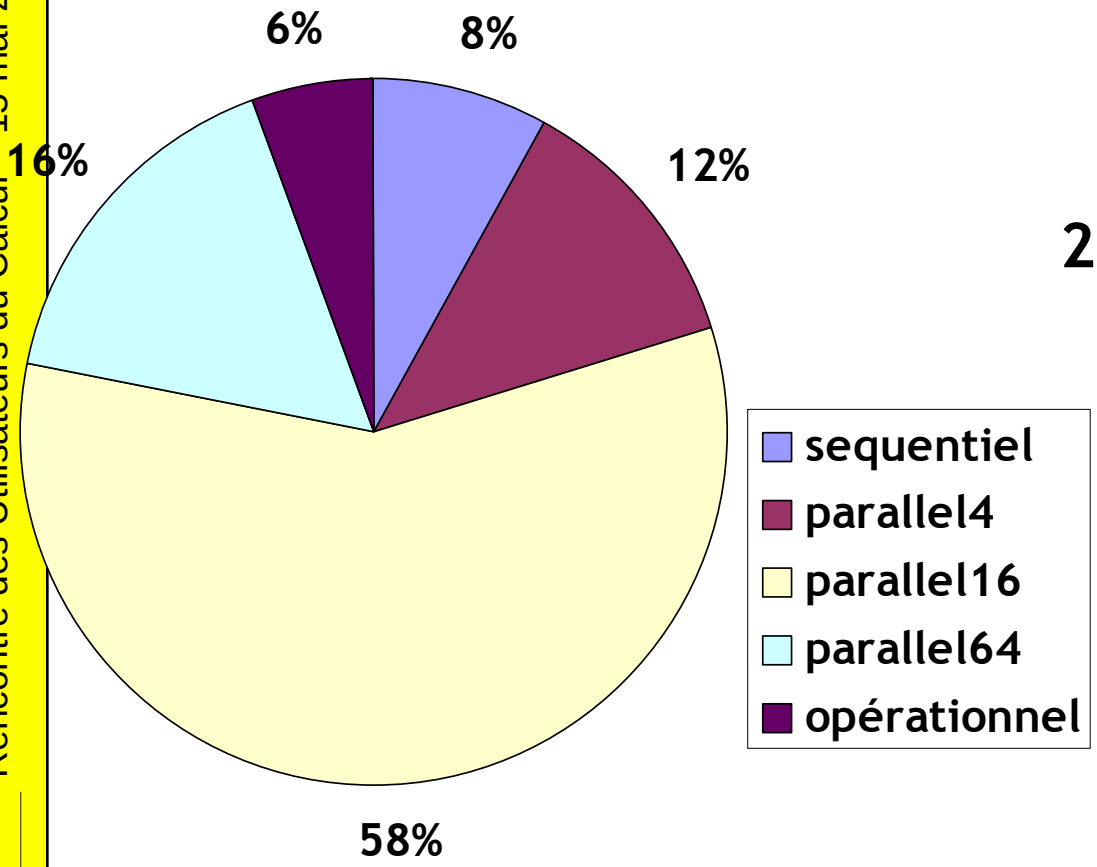
Nombre de job soumis: CAPARMOR



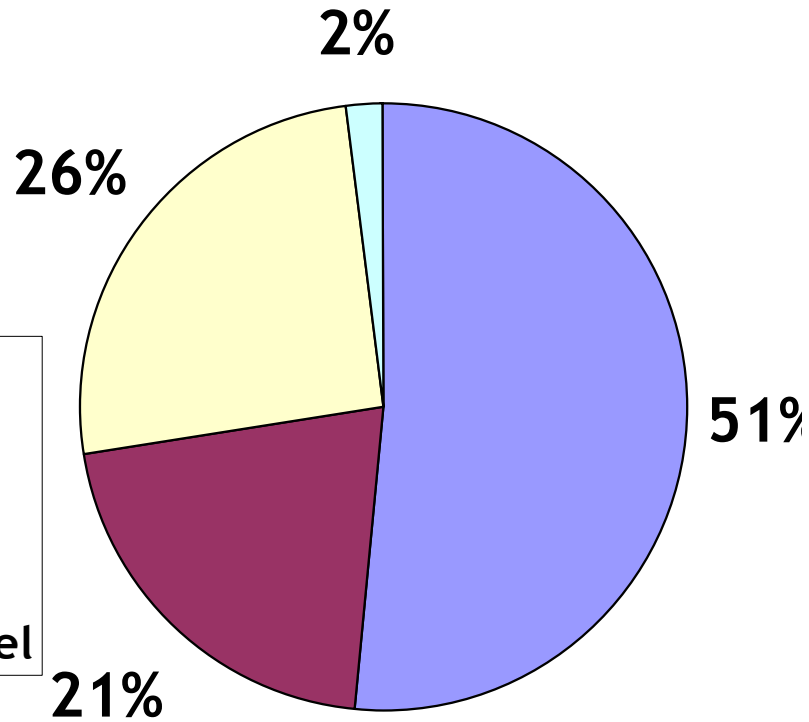
Les jobs opérationnels

- Coriolis
- Previmer
  - WW3
  - MARS
  - Swan
  - …..
- Medspiration
  - The European Service for Precise Sea Surface Temperature
- Previair
  - WRF

CAPARMOR;



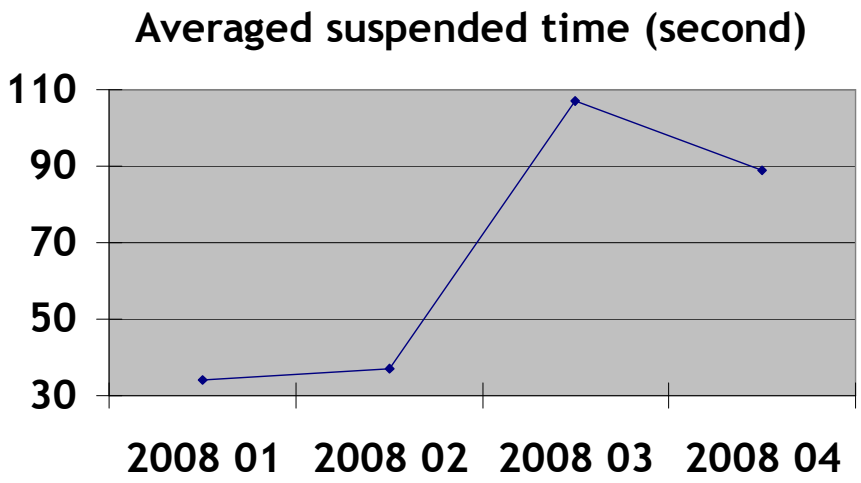
Total CPU time

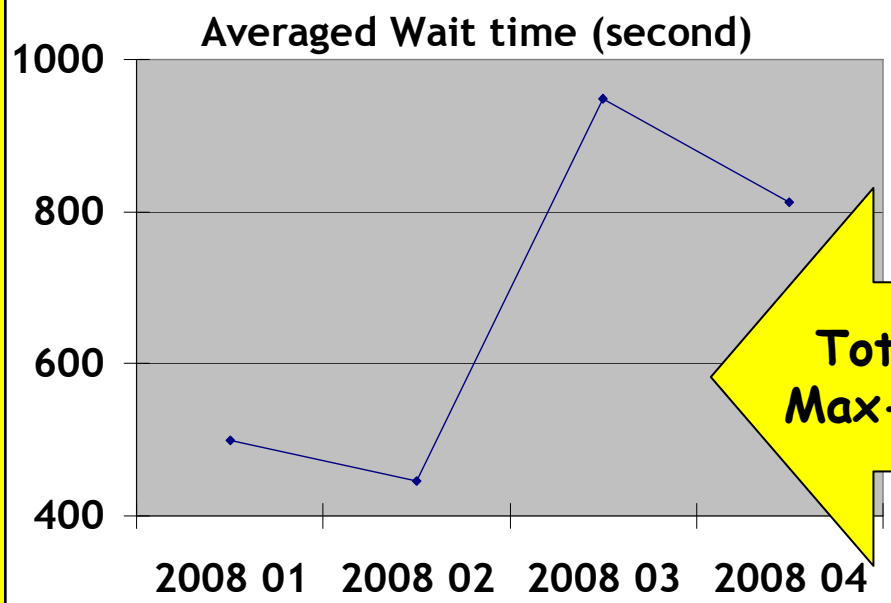


Nombre de job soumis
(sauf jobs opérationnels)

10.2007 à 04.2008

Déjà saturé??





queues	nb-cores /job	elapse-time	max-cores /user
sequentiel	1	96h.	4
court	1	1h.	8
court4	2<n<4	2h.	32
parallel4	2<n<4	72h.	12
parallel16	5<n<16	48h.	32
parallel64	17<n<64	24h.	64
parallelt4	2<n<4	10mn.	4
parallelt16	5<n<16	10mn.	16

Total-cores/user : 68
Max-cores/user : queus

Caparmor phase 2

	Cœur	Mémoire	Total Flops	Disques
Caparmor phase1	**256**	**1To**	**3T**	**14To**
	x 8 ?	x 4 ?	x 8 ?	x ?
Caparmor phase2	**2048 ?**	**4To ?**	**24T ?**	**14To**

- Dual ou Quadri…
  - 4 cœurs/CPU = 8 cœurs /nœuds = 8 OMP threads
- 4 Racks
  - Plus de MPI => maillage raffiné? Plus grand Domaine?

Espace Disque

- Saturé??
- Il faut écrire les résultats dans /export/home*!!
  - Il y a quelques utilisateurs qui écrivent dans /home*/machine via NFS => ça ralentit le temps de calcul.
  - > ça fait attendre les autres jobs.

- Extension?
  - /work ??
  - /data ??

Merci de votre attention…

Questions?

Requête?