



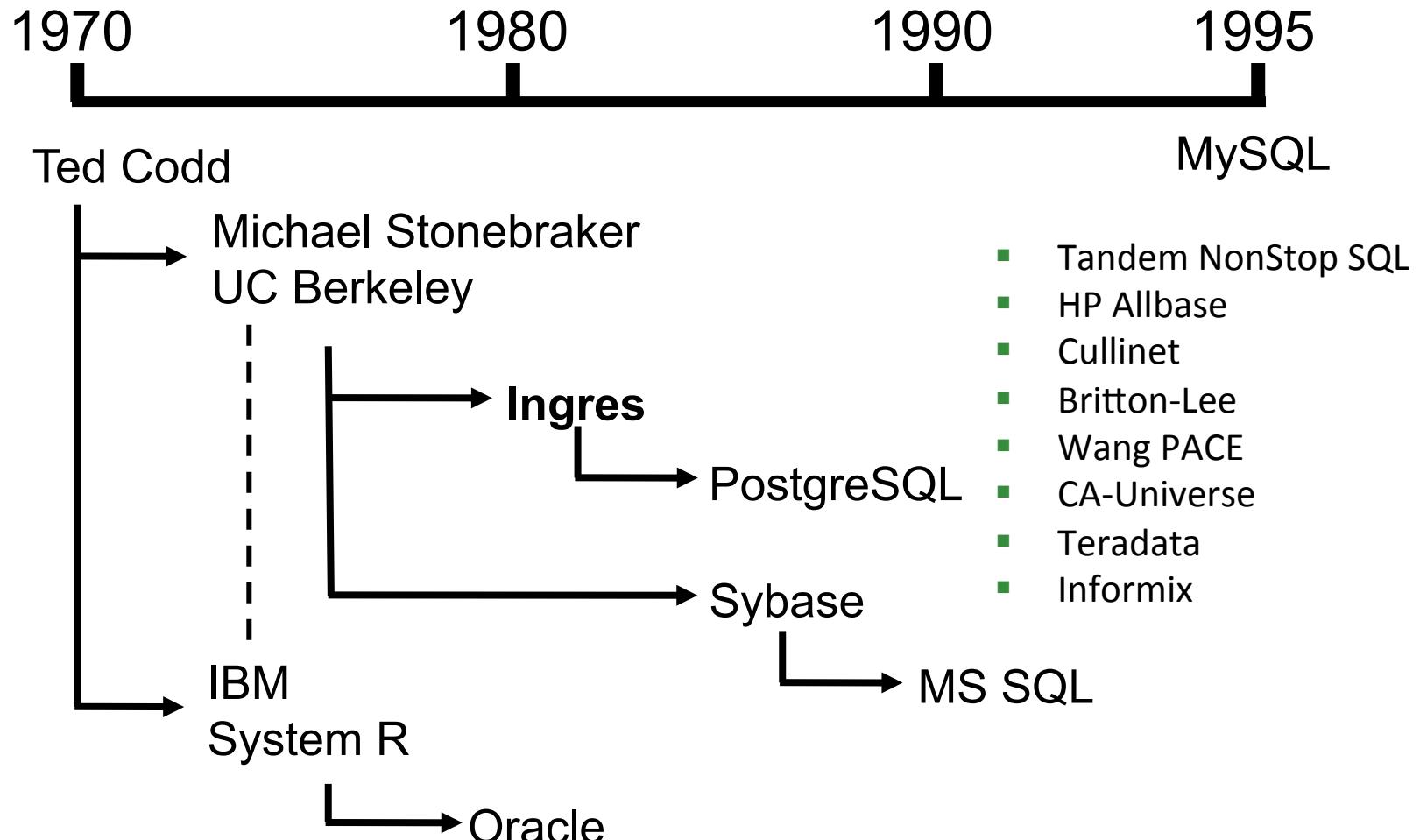
VectorWise

Simply Fast = High Performance & Affordable Cost

Mohamed ALIOUAT
Business Développement Manager

Sept 2013

Il était une fois les bases de données relationnelles



Ingres devient Actian

■ Business Modèle:

- Open Source

■ Solutions:

- SGBDR transactionnel :
- SGBDR décisionnel:

Ingres Enterprise Edition
Ingres Community Edition

VectorWise
MonetDB Open Source

■ Société:

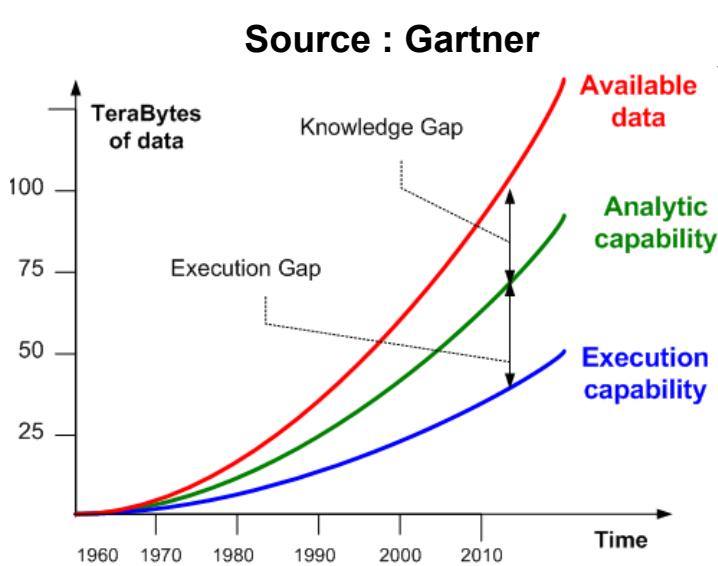
- 30 ans, indépendante depuis 2006
- 2011 Ingres devient Actian
- >10.000 clients dans 58 pays
- 70 M\$ de CA
- Profitable, 45M\$ de cash
- 250 personnes dont 10 en France



Nos clients en France ...



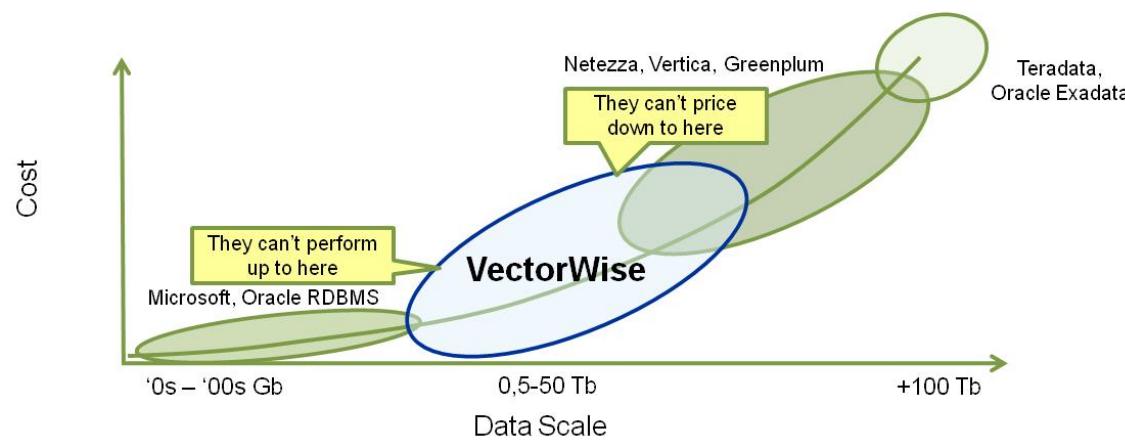
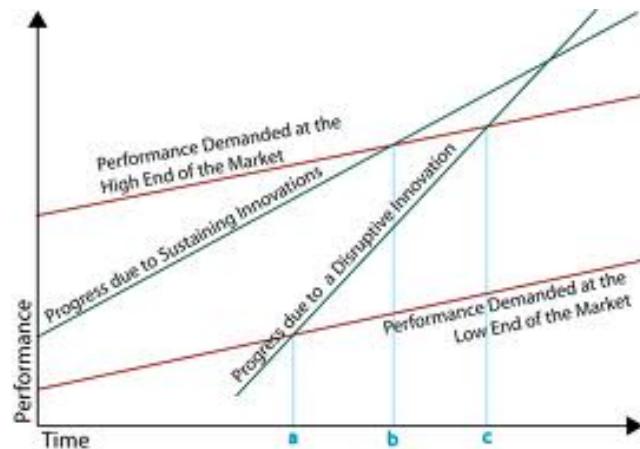
Problèmes des applications décisionnelles



- Survey 9 (2010): Why BI Projects Fail?
 - 1. Query Performance Too Slow
- 2010 TDWI Best Practices Report
 - “45% Poor Query Response” the top problem that will eventually drive users to replace their current data warehouse platform.”
- 2010 Gartner Magic Quadrant DW
 - 70% of data warehouses experience performance constrained issues of various types

Les temps de réponse des applications décisionnelles représentent la qualité perçue par l'utilisateur de l'application

Vectorwise: technologie de rupture





Technologie Vectorwise

Vectorwise: un projet universitaire du CWI

1990



1993



2005



2010



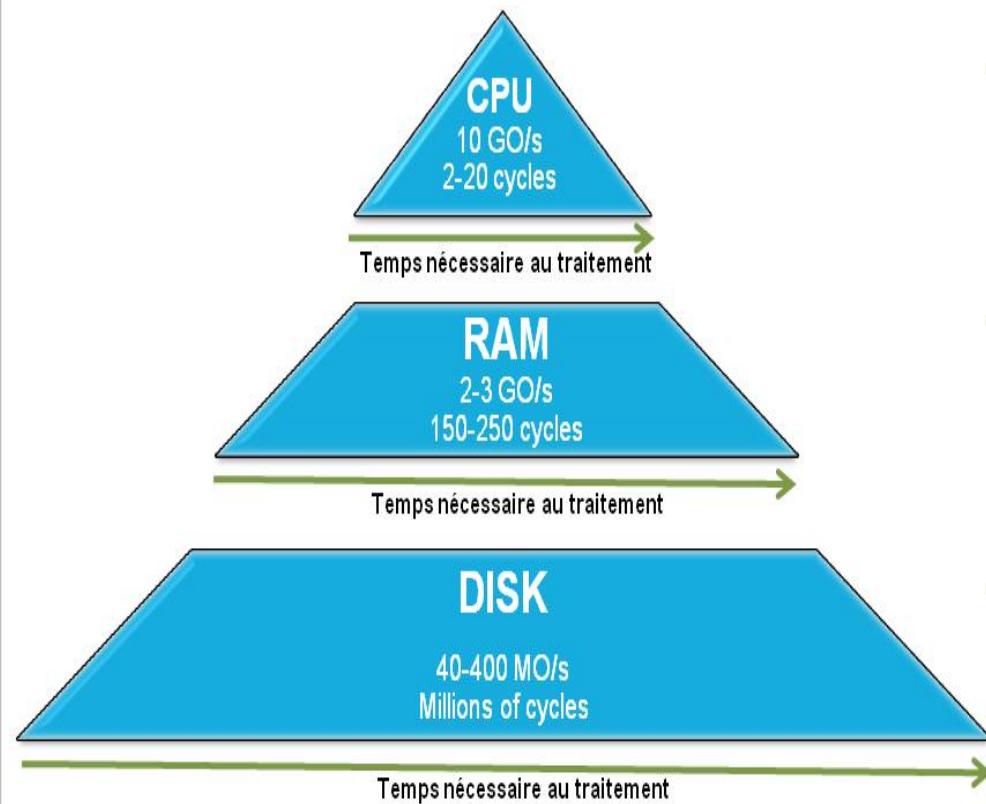
Premières
implémentations
SGBD colonne

MonetDB

MonetDBX100

Vectorwise

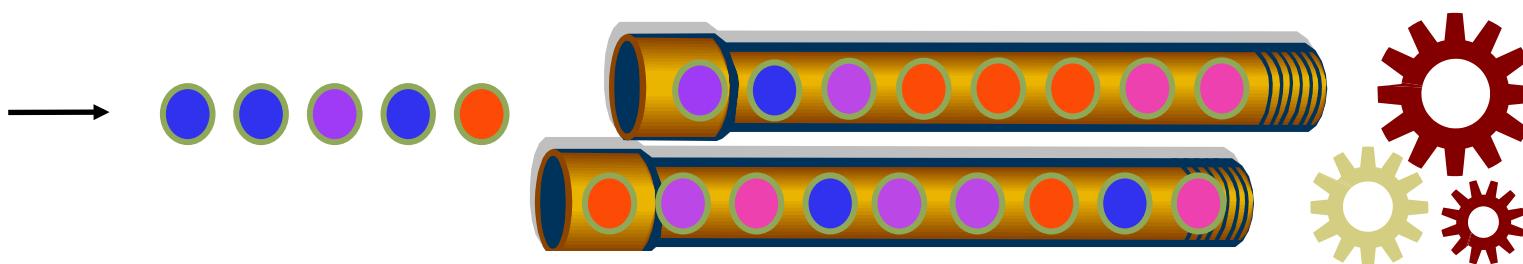
Vectorwise: Optimisation des ressources



- **Exécution « in-cache »**
 - Décompression sélective des vecteurs utilisés par l'instruction en mémoire cache
 - Exécution des instructions en mémoire cache
- **SGBDR « in-memory »**
 - Lecture des blocs physiques compressés situés en mémoire
 - Hybride « in-memory » + « on disk »
 - Insertion unitaire (SQL Insert) en mémoire
- **Stockage physique « colonne »**
 - Moins d'I/O disque
 - Compression automatique
 - Indexation automatique
 - Intégration simplifiée des SSD

Vectorwise: accélération hardware « in CPU »

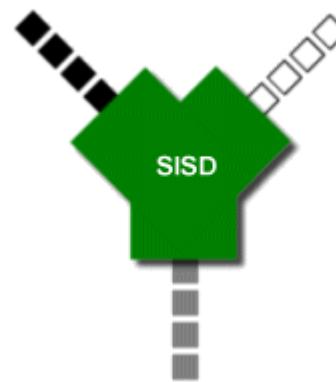
- Multi-CPU
 - Multi-Core
 - Multi-Thread
 - Super Scalaire (hyper pipelining) → parallélisation des instructions
 - Vectorisation → traitement d'ensemble de données (vecteurs)
- NATIVEMENT plutôt que MASSIVEMENT parallèle



Vectorwise: exécution vectorielle

exécution traditionnelle

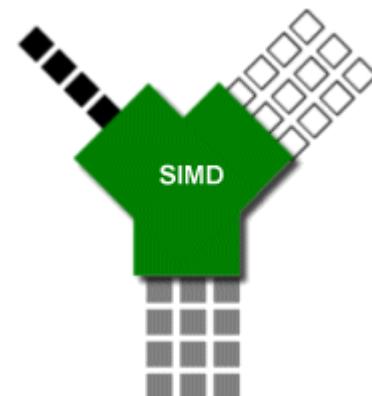
1	$x 1 = 1$
2	$x 2 = 4$
3	$x 3 = 9$
4	$x 4 = 16$
5	$x 5 = 25$
6	$x 6 = 36$
7	$x 7 = 49$
8	$x 8 = 64$
...	
n	$x n = n^2$



Play

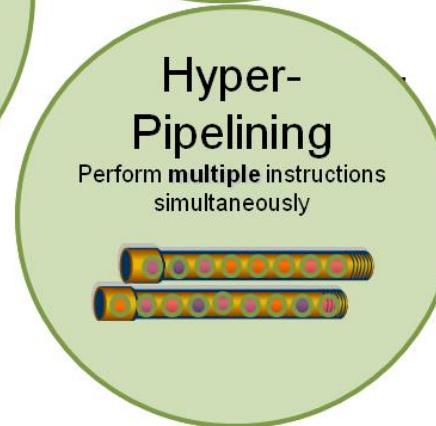
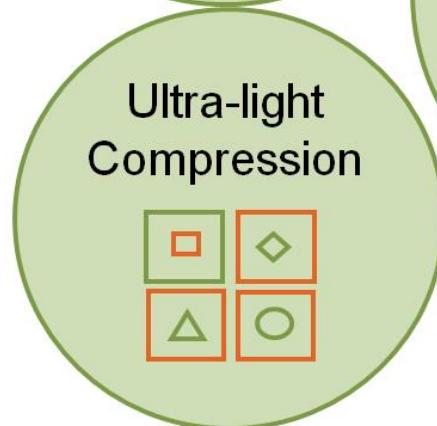
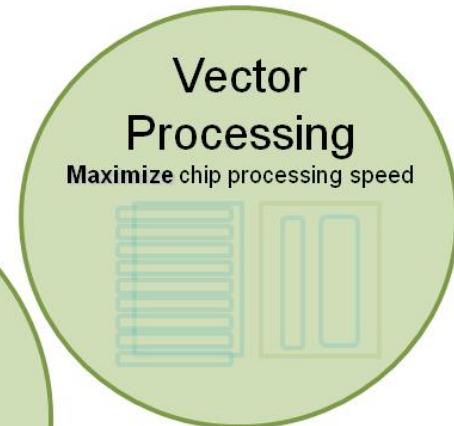
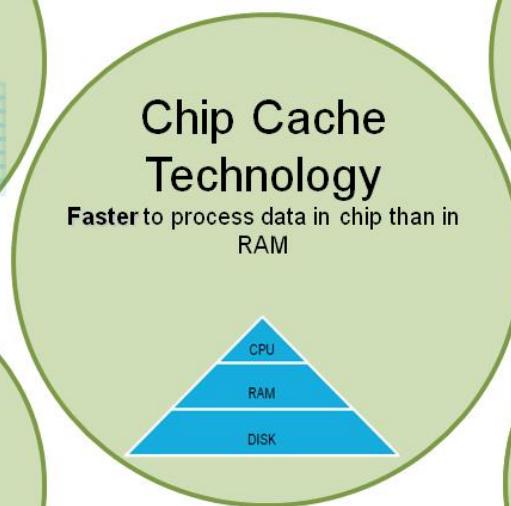
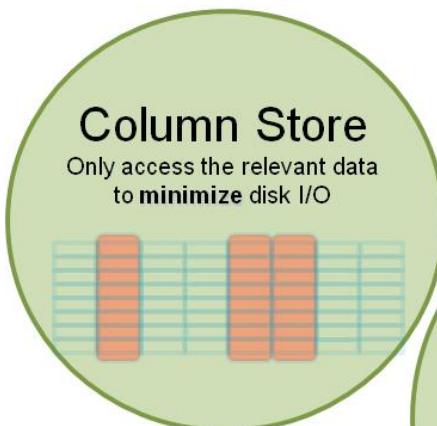
exécution vectorielle

1	$x 1 = 1$	1
2	$x 2 = 4$	4
3	$x 3 = 9$	9
4	$x 4 = 16$	16
5	$x 5 = 25$	25
6	$x 6 = 36$	36
7	$x 7 = 49$	49
8	$x 8 = 64$	64
...		
n	$x n = n^2$	n^2



Play

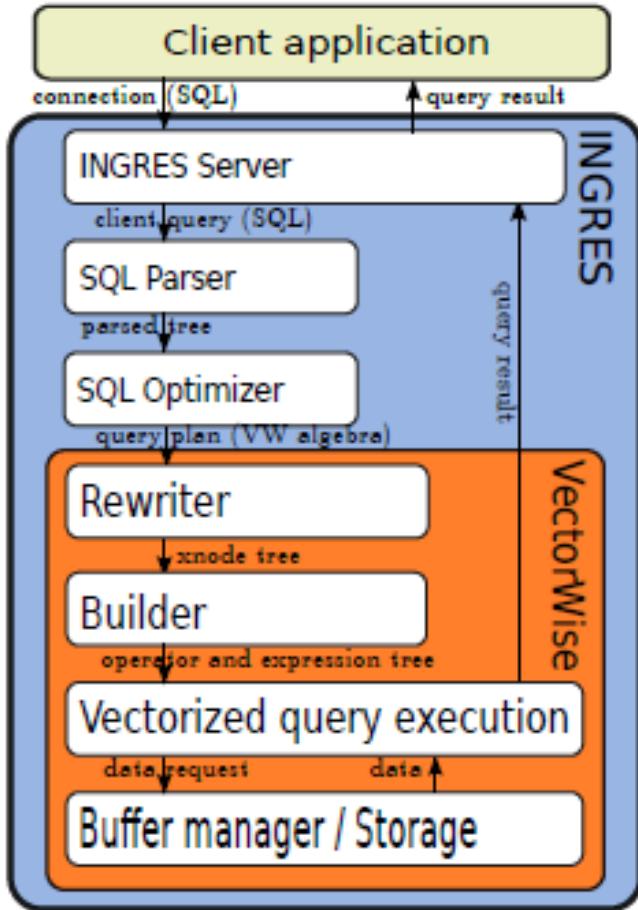
Vectorwise





Architecture

VectorWise: architecture



VectorWise: intégration technique simplifiée

Héritage Ingres

■ Connectivité

- .Net, JDBC, ODBC, PHP, Perl...
- ETL: Stambia, Talend, SyncSort, Informatica, DataStage..
- BI: BiBoard, BO, Cognos, MicroStrategy, Hyperion, JasperSoft, Pentaho, SpagoBI, TableauSoftware, YellowFin,...
- Analytics: SAS, SPSS, RapidMiner, RevolutionAnalytics,...



■ SQL Standard

- Pas de syntaxe propriétaire
- Support de ANSI SQL-92



■ Outils d'exploitation

- DBA tools
- BackUp / Restore
- Utilitaires Load/Unload (copy, vwload)



Scalabilité: Vectorwise Virtual SMP



Operating System

vSMP Foundation

Hardware

Hardware

Hardware

Hardware

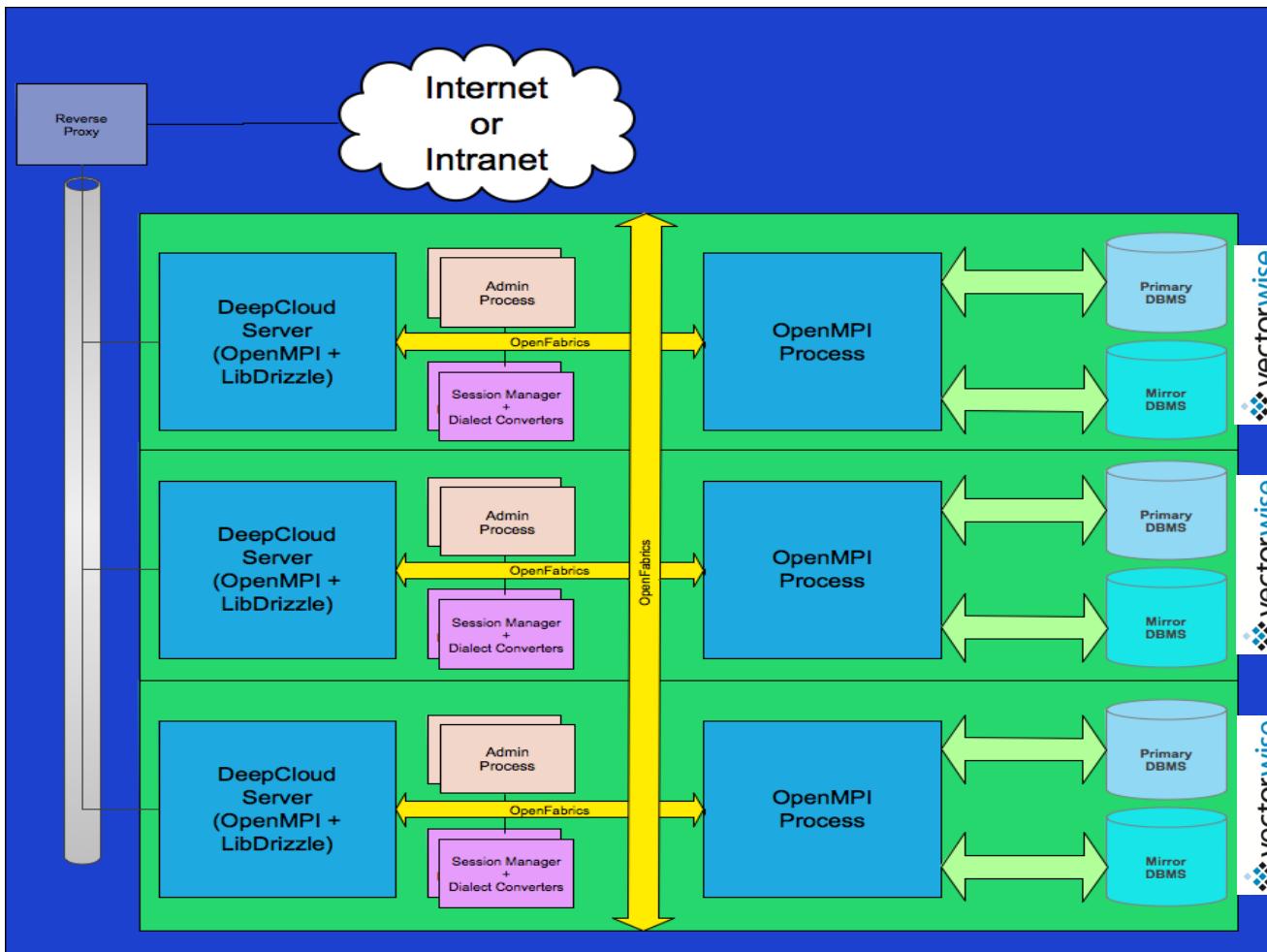
Hardware

Hardware

Standard Interconnect

#	Environment	Nodes	RAM [GB]	DB Size	max_memory [GB]	buffer_pool [GB]	total_memory [GB]	DBT3 Power run #1	DBT3 Power run #2	DBT3 Power run #3	Power Ratio
1	Vectorwise Native	1	48	X1	12	24	36	95,565	244,869	247,363	1.00
2	Vectorwise vSMP	1	48	X1	12	24	36	97,237	220,924	220,048	0.90
3	Vectorwise vSMP	3	144	X2	32	64	96	136,322	247,284	248,417	1.12
4	Vectorwise vSMP	4	192	X4	42	84	126	146,847	214,692	223,811	0.99
5	Vectorwise vSMP	5	240	X8	54	108	162	146,497	177,433	177,547	0.80

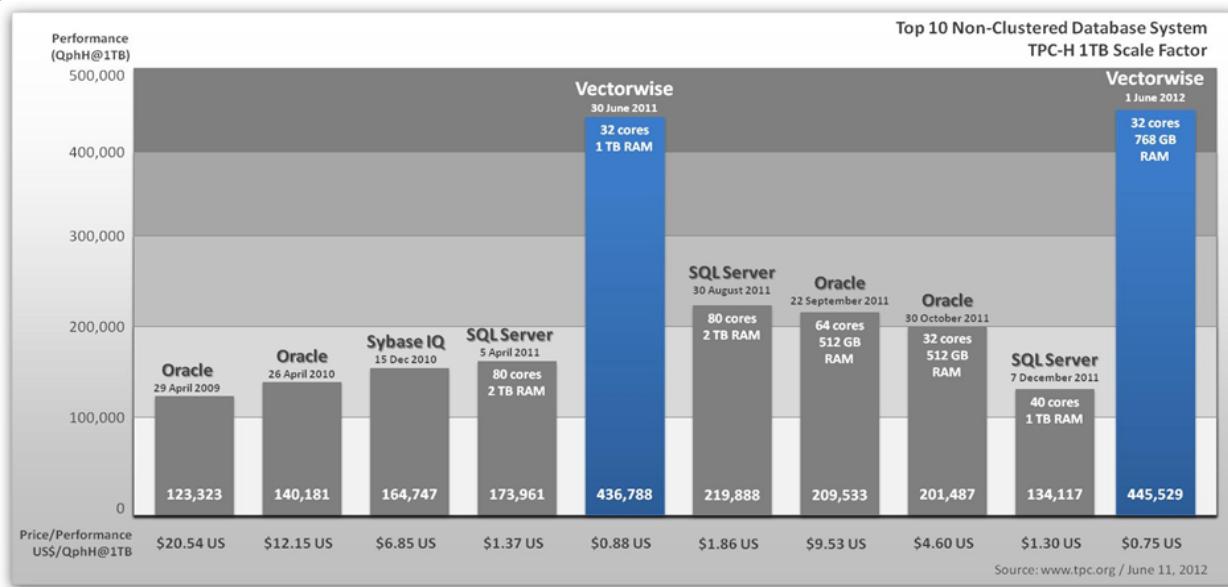
Volumétrie extrême: Vectorwise DeepCloud MPP



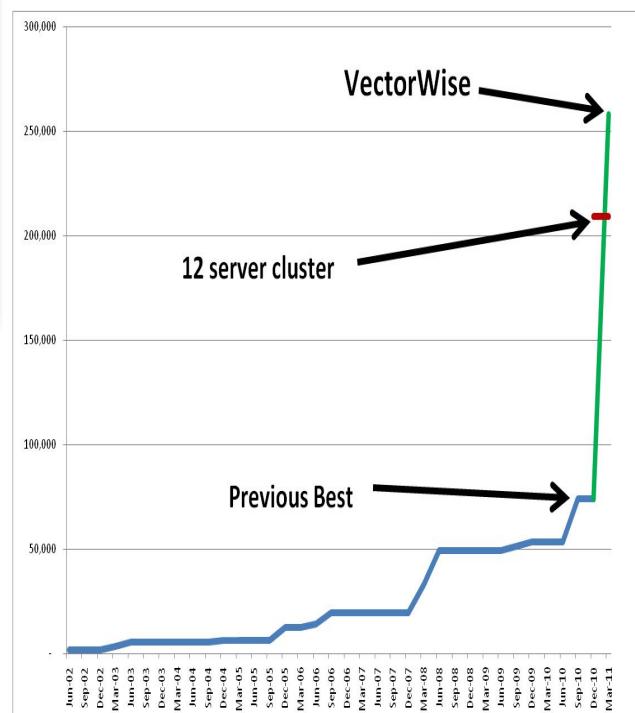


Benchmark

Benchmark TPCH : 3 records du monde



TPC, TPC Benchmark, TPC-H, Qpph, QthH and QphH are trademarks of the Transaction Processing Performance Council (TPC)



Benchmark TPCH: VectorWise VS MS SQL Server

TPCH 1TB	MS SQL Server	Ingres VectorWise
CPU Type:	Intel Xeon Processor E7-8870 2.40GHz	Intel Xeon E7-8837 2.67GHz
Server:	IBM System x3850 X5 8P	Dell PowerEdge R910
Total # of Processors:	8	4
Total # of Cores:	80	32
Database Manager	Microsoft SQL Server 2008 R2 Enterprise Edition	VectorWise 1.6
Operating System	Microsoft Windows Server 2008 R2 Enterprise Edition	RedHat Enterprise Linux.6.1
Total Storage/Database Size Ratio:	7.00	2.34
Metric	173,962 QphH@1000GB	436,789 QphH@1000GB
Price/Performance	1.37 USD per QphH@1000GB	.88 USD per QphH@1000GB
Availability Date	20-May-2011	30-Jun-2011

Benchmark TPCH: VectorWise VS Oracle

TPCH 1TB	Oracle	Ingres VectorWise
CPU Type:	SPARC64 VII+ 3000MHz	Intel Xeon E7-8837 2.67GHz
Server:	SPARC Enterprise M8000 Server	Dell PowerEdge R910
Total # of Processors:	16	4
Total # of Cores:	64	32
Database Manager	Oracle Database 11g R2 Enterprise Edition with Partitioning	VectorWise 1.6
Operating System	Oracle Solaris 10	RedHat Enterprise Linux.6.1
Total Storage/Database Size Ratio:	11.20	2.34
Metric	209,533 QphH@1000GB	436,789 QphH@1000GB
Price/Performance	10.13 USD per QphH@1000GB	.88 USD per QphH@1000GB
Availability Date	22-sept.-11	30-Jun-2011

Benchmark TPCH: VectorWise VS SybaseIQ

TPCH 1TB	Sybase IQ	Ingres VectorWise
CPU Type:	AMD Opteron 8439 SE 6-Core 2.8GHz	Intel Xeon E7-8837 2.67GHz
Server:	IBM Power 780 Model 9179-MHB	Dell PowerEdge R910
Total # of Processors:	8	4
Total # of Cores:	48	32
Database Manager	Sybase IQ Single Application Server Edition v.15.1 ESD #1	VectorWise 1.6
Operating System	Red Hat Enterprise Linux 5.3	RedHat Enterprise Linux.6.1
Total Storage/Database Size Ratio:	15.18	2.34
Metric	102,375 QphH@1000GB	436,789 QphH@1000GB
Price/Performance	3.63 USD per QphH@1000GB	.88 USD per QphH@1000GB
Availability Date	01-Feb-2011	30-Jun-2011

Benchmark client: VectorWise VS Teradata

Les tests de performance permettent de valider la tenue en charge de la base lors d'une sollicitation massive.
Le but est de répondre aux besoins de requêtage de 120 magasins.

Vectorwise / 25 users concurrents / 50% requêtes complexes - 50% requêtes simples

Urls	Nombre	Moy (ms)	Min (ms)	Max (ms)	Cent 90 (ms)	Ec Type (ms)	Tx erreur (%)
sc01-0001-Requete1	1488	3602	530	12523	5231	1520	0
sc01-0002-Requete2	1469	3500	1025	23570	6243	2457	0
scenario01-RequeteStandard	2957	3553	532	23573	5688	2041	0
							17162

Teradata / 25 users concurrents / 10% requêtes complexes - 90% requêtes simples

Urls	Nombre	Moy (ms)	Min (ms)	Max (ms)	Cent 90 (ms)	Ec Type (ms)	Tx erreur (%)
sc01-0001-Requete1	256	10420	1886	35250	17272	5573	0
sc01-0002-Requete2	2195	4297	219	24383	9795	3784	0
scenario01-RequeteStandard	2451	4961	224	35270	11176	4438	0
							38243

Vectorwise

Nombre d'utilisateurs : 600

Montée en charge : 3600s

Durée du tir : 3600s

Très bonne capacité 1200 requêtes par minute

La requête magasin peut être exécutée 10 fois/magasin/minutes malgré la perturbation de la requête d'agrégation.



Références

Clients VectorWise :



THE ROHATYN GROUP



Work. Online

Information und Technik
Nordrhein-Westfalen





Tarification

Souscription annuelle VS Licence/Maintenance

■ Souscription annuelle

- Comprend le droit d'utilisation, le support et les mises à jour
- Illimité en nombre d'utilisateurs connectés
- Intéressant lorsque l'on souhaite utiliser un budget de fonctionnement existant (OPEX)

■ Licence / Maintenance

- Comprend la propriété perpétuelle du logiciel, le support et les mises à jour
- Illimité en nombre d'utilisateurs connectés
- Indépendant de la puissance du serveur
- Intéressant lorsque l'on dispose d'un budget d'investissement que l'on souhaite limiter le budget de fonctionnement (CAPEX)

Prix de base

■ PRIX par CORE

- | | |
|-------------------------|------------------------------|
| • Souscription annuelle | 10 K€ / core |
| • Licence – Maintenance | 20 K€ + 4 K€ (maint.) / core |

■ PRIX par To

- | | |
|-------------------------|-----------------------------|
| • Souscription annuelle | 30 K€ / To |
| • Licence – Maintenance | 60 K€ + 12 K€ (maint.) / To |
-
- Prix dégressifs en fonction du nombre de cores ou du nombre de To.

Exemple

■ Hypothèses

- Volumétrie= 1 To
- Serveur possible= 4 cores

■ Prix

- | | |
|---------------------------------|---------------|
| • Souscription annuelle / Core: | 40 K€ |
| • Licence – Maintenance / Core: | 80 K€ + 16 K€ |
| • Souscription annuelle / To: | 30 K€ |
| • Licence - Maintenance / To: | 60 K€ + 12 K€ |



Conclusion

Avis des analystes

*“....we are impressed with the **vision and ambition** that Ingres is demonstrating”*

“Game-changing technology”
- Don Feinberg, **Gartner Group**

- Matt Aslett, **451 Group**

*“This is definitely a breakthrough. **It delivers faster results at lower costs**”*

- Noel Yuhanna, **Forrester Research**

“I sense a disturbance in the force. VectorWise will remain 4 years ahead until some competitor finds a way to catch up at a software level. This is unprecedented.”

- Robin Bloor, **President, The Bloor Group**

Conclusion #1: performance



Actian Vectorwise, lui, répond
en deux secondes...



en savoir plus

“Les espèces qui survivent ne sont pas les espèces les plus fortes, ni les plus intelligentes, mais celles qui s'adaptent le mieux aux changements.”

- Charles Darwin

Conclusion #2: coûts abordables



**Actian Vectorwise,
la base de données décisionnelle la plus
rapide du monde, et la plus abordable**

[cliquez pour en savoir plus](#)

“Un Cent épargné est un Dollar sauvé.”

- Benjamin Franklin

Conclusion #3: simplicité



Actian Vectorwise,
la base de données décisionnelle la plus
rapide du monde, et la plus simple à utiliser
[en savoir plus](#)

“La simplicité est la sophistication suprême.”

- Leonard de Vinci



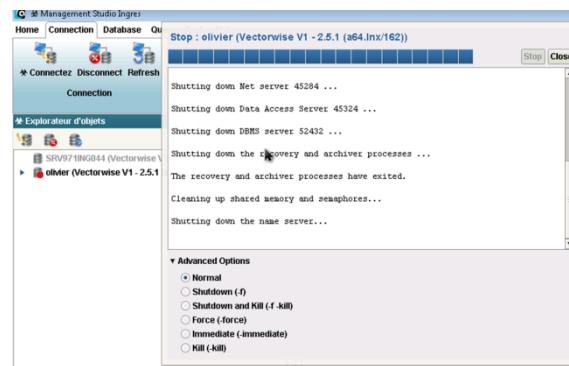
Monitoring: Nagios

Christian Raza
Directeur Commercial

jeudi, 13 septembre 12

Monitoring

The screenshot shows the Actian Director application window. The top menu bar includes Home, Connection, Database, Query, Tools, and Help. Below the menu is a toolbar with icons for Database, Table, View, Procedure, Sequence, Event, Synonym, User, Group, Role, and Profile. The main area features a "Start Page" button and a "Get Started" section with links to "Connect to an instance", "New Database...", "New Table...", "Load Data into Vectorwise", "Open File...", and "New Query". A "Common Tasks" section contains a "Director" link. At the bottom, there are social media links for Facebook, Twitter, LinkedIn, and YouTube, along with a "Show page on startup?" checkbox and a "Download latest version" button.



This screenshot shows the "Management Studio Ingres" window with a "Query 1" tab. The "Query Text" pane contains the following SQL code:

```
select count(*) from iostats
select sum(await) from iostats
```

The "Results 1" pane shows the output of the first query:

```
SELECT count(*) from iostats;
col1
1533346
(1 row)
```

At the bottom, a status bar indicates "Successful" and provides connection information: "olivier/A/1", "ingres", "adeo", "Time: 0,461 se", and "Total rows: 1".

This screenshot shows the "Management Studio Ingres" object browser window titled "SRV971ING044 (Vectorwise V3 - 2.5.1 (a64.lnx/162))". The tree view shows the database structure:

- olivier (Vectorwise V1 - 2.5.1 (a64.lnx/162))
 - * Bases de données
 - * Bases de données système
 - adeo
 - * Tables
 - * Tables système
 - INGRES.IOSTATS
 - * Colonnes
 - TM (timestamp without time zone, timestamp without time zone)
 - DEVICE (varchar(32), null)
 - RROMPS (decimal(8,4), null)
 - WRQMP (decimal(8,4), null)
 - RPS (decimal(8,4), null)
 - WPS (decimal(8,4), null)
 - RMPS (decimal(8,4), null)
 - WMBPS (decimal(8,4), null)
 - AVGRQ (decimal(8,4), null)
 - AVGQU (decimal(20,4), null)
 - AWAIT (decimal(20,4), null)
 - SVCTM (decimal(8,4), null)
 - UTIL_PER_CENT (decimal(8,4), null)
 - * Keys
 - * Contraintes
 - * Indices
 - INGRES.PROC
 - INGRES.TEST
 - INGRES.THREAD

Monitoring

Screenshot of the Nagios monitoring interface:

Header: Address bar shows 10.100.11.122/nagios/. Navigation icons include Back, Forward, Reload, Stop, and Home.

Left Sidebar:

- Action Logo:** Actian logo.
- Nagios Logo:** Nagios logo.
- General:**
 - Home
 - Documentation
- Current Status:**
 - Tactical Overview
 - Map
 - Hosts
 - Services
 - Host Groups
 - Summary
 - Grid
 - Service Groups
 - Summary
 - Grid
 - Problems
 - Services
 - (Unhandled)

Main Content Area:

Current Network Status:

Last Updated: Wed May 23 13:48:31 BST 2012
Updated every 90 seconds
Nagios® Core™ 3.3.1 - www.nagios.org
Logged in as ema

[View Service Status Detail For All Service Groups](#)
[View Status Summary For All Service Groups](#)
[View Service Status Grid For All Service Groups](#)

Host Status Totals:

Up	Down	Unreachable	Pending
2	0	0	0

[All Problems](#) [All Types](#)

0	2
---	---

Service Status Totals:

Ok	Warning	Unknown	Critical	Pending
39	0	0	0	0

[All Problems](#) [All Types](#)

0	39
---	----

Service Overview For All Service Groups:

Business Application Service (APPservice):

Host	Status	Services	Actions
emamon	UP	16 OK	

Ingres Database Service (llservice):

Host	Status	Services	Actions
emamon	UP	11 OK	

Vectorwise Database Service (VWservice):

Host	Status	Services	Actions
emamon	UP	16 OK	