

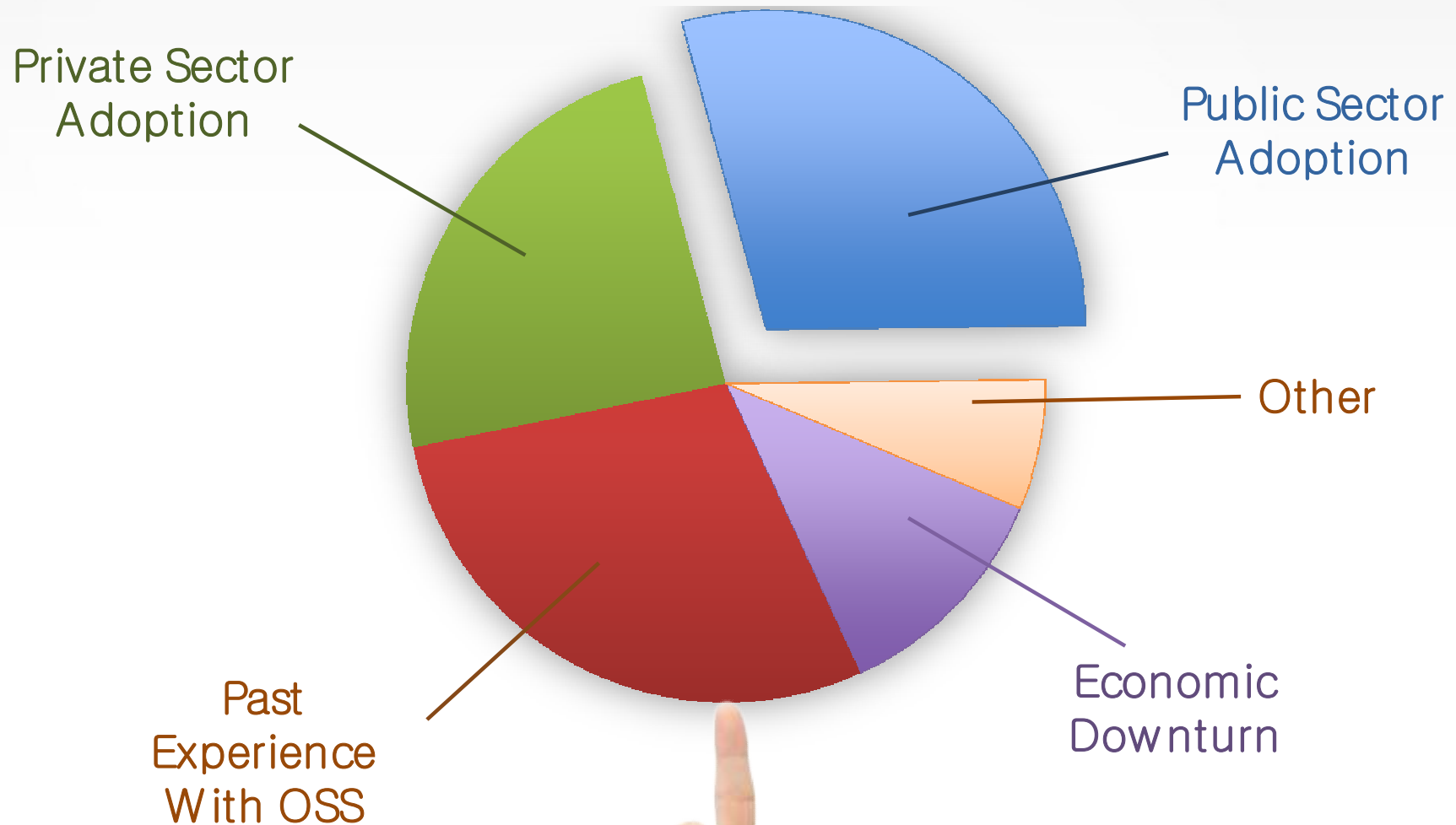
공개SW DBMS 소개 및 적용사례

Date: 2012-05-09

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Drivers of OSS Tipping Point



(출처: Future of Open Source, 2010년)

DBMS 시장을 바라보는 2가지 시선

[매출액 기준]

Oracle (8,336M) > MS-SQL (3,479M) > MySQL (38M)

* 2007 Worldwide RDBMS Revenue (IDC, June 2008)

[카피 수 기준]

MySQL (800만) > MS-SQL (40만) > Oracle (24만)

* 2004년 기준

DBMS 시장을 바라보는 2가지 시선



SUN TO ACQUIRE MYSQL

Sun announces agreement to acquire MySQL AB, developer of the world's most popular open source database. » [Learn More](#)

Jonathan Schwartz, Rich Green, Marten Mickos (CEO of MySQL) and Greg Papadopoulos



공개SW DBMS

구분	CUBRID	MySQL	PostgreSQL
Open Source License	엔진: GPL 인터페이스: BSD	GPL (Community Edition)	BSD
Commercial License	X	O (Enterprise Edition)	O (EnterpriseDB*)
기술지원	O	O (Oracle 채널)	O (다우기술 총판)

* EnterpriseDB: Postgres Plus Standard Server, Postgres Plus Advanced Server

	무료 이용가능	배포 허용가능	소스코드 취득가능	소스코드 수정가능	2차적 저작물 재공개 의무	독점SW와 결합가능
GPL	O	O	O	O	O	X
LGPL	O	O	O	O	O	O
MPL	O	O	O	O	O	O
BSD license	O	O	O	O	X	O
Apache license	O	O	O	O	X	O

MySQL History

- ✓ 1994년 개발 시작 by Michael Widenius
- ✓ 1995년 최초 버전 릴리스(Internal)
- ✓ 1999년 오픈소스 DBMS 전환
- ✓ 2001년 MySQL AB 설립
- ✓ 2005년 MySQL 5.0 릴리스
- ✓ 2008년 SUN “MySQL AB” 인수(\$10B)
- ✓ 2010년 Oracle “SUN” 인수
- ✓ 2011년 MySQL 5.5 릴리스 & 라이선스 정책 변경



MySQL Positioning



Win back?

PostgreSQL 포지셔닝




THE CLOUD DATABASE
SET-UP IN MINUTES, RUN FOREVER
POSTGRES PLUS CLOUD DATABASE

PostgreSQL
and
Postgres Plus

Features:

- AUTO-PROVISIONING
- SELF-HEALING CLUSTERS
- ELASTIC SCALE OUT
- AUTO BACKUPS
- AUTOMATIC HA
- AUTO LOAD BALANCING
- SECURITY
- ELASTIC STORAGE



Take the wind out of Oracle's ~~sales~~ sales!

Save money on your database.
Postgres Plus Advanced
Server 9.1 is here!

[Learn more ->](#)

CUBRID Facts

- ✓ RDBMS
- ✓ True Open Source
- ✓ Optimized for Web services
- ✓ High performance 3-tier architecture
- ✓ Large DB support
- ✓ High-Availability feature
- ✓ DB Sharding support
- ✓ Oracle/MySQL compatible SQL syntax
- ✓ ACID Transactions
- ✓ Online Backup

Performance

Scalability

Availability

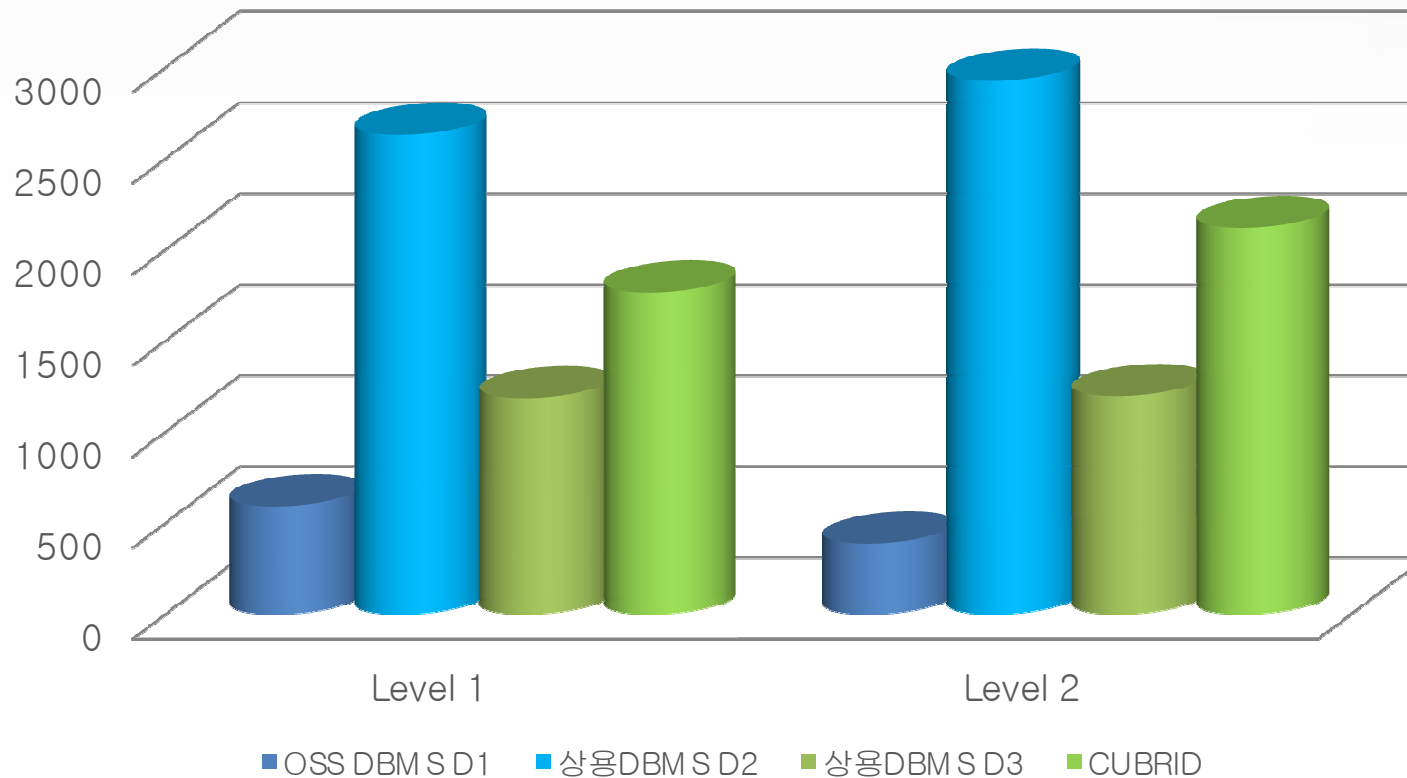
Reliability

Usability



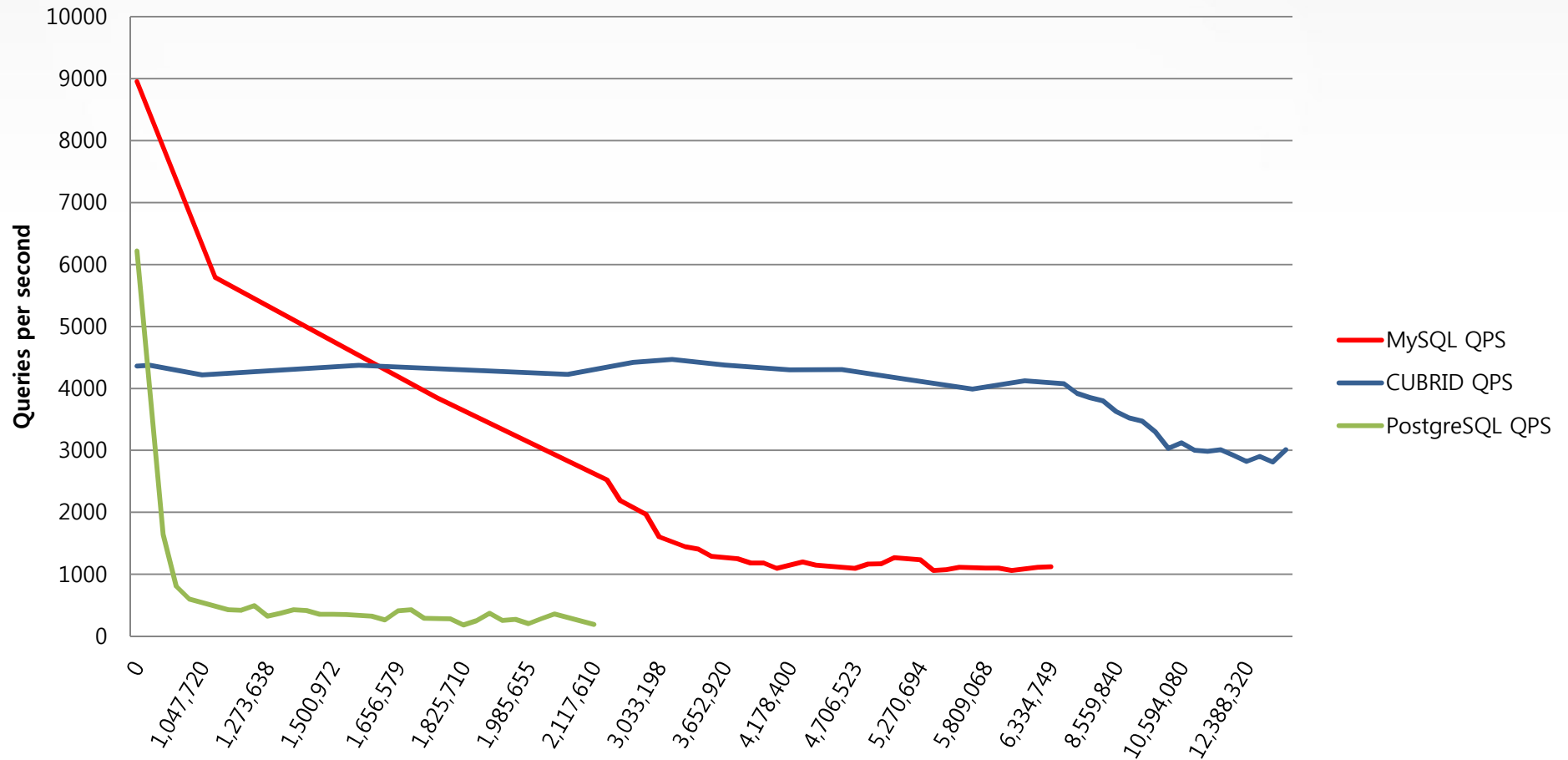
성능 - READ Intensive

DBMS 별 초당 페이지 처리량 (PV/sec)



* NBD Benchmark: NHN Internet Bulletin Board Application Database Benchmark

성능 - Random INSERT

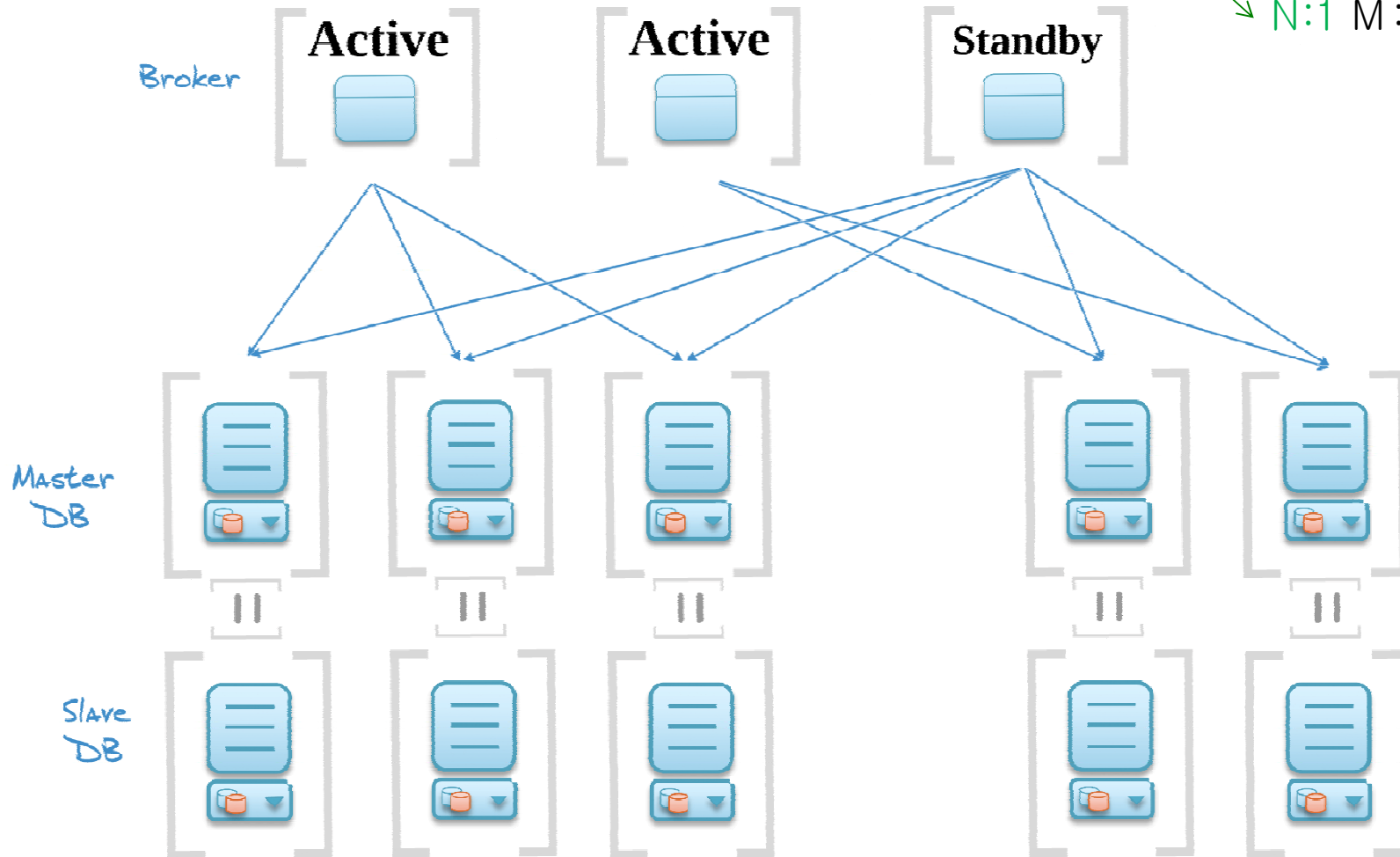


가용성 - HA solutions

DBMS	Cost	Disk-shared	Replication	Consistency	Auto-Failover
Oracle RAC	+++++	Shared everything	N/A	N/A	O
MS-SQL Cluster	+++	Shared everything	N/A	N/A	O
MySQL Cluster	++	Shared nothing	Log Based	Async Sync	O
CUBRID	Free	Shared nothing	Log Based	Sync Semi-sync Async	O

N:N Master:Slave

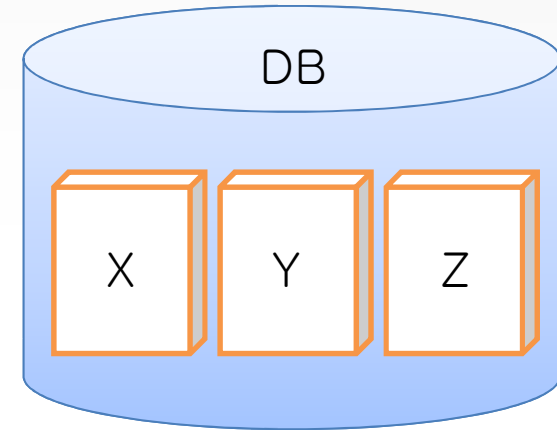
- 1:1 M:S
- 1:N M:S
- 1:1:N M:S:R
- N:N M:S
- N:1 M:S



확장성 – Database Sharding

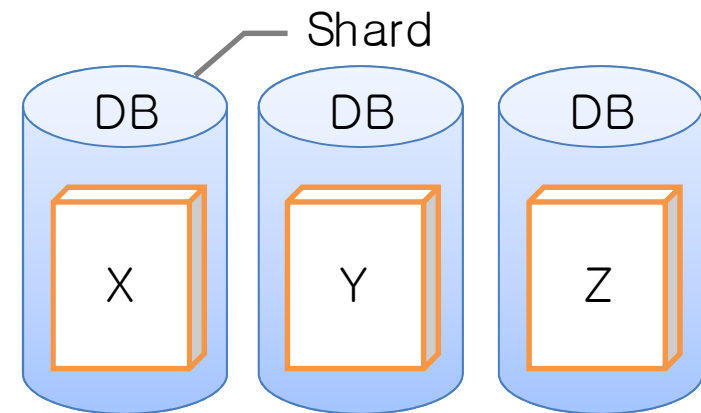
- Partitioning

Divide the data between multiple tables within one Database Instance

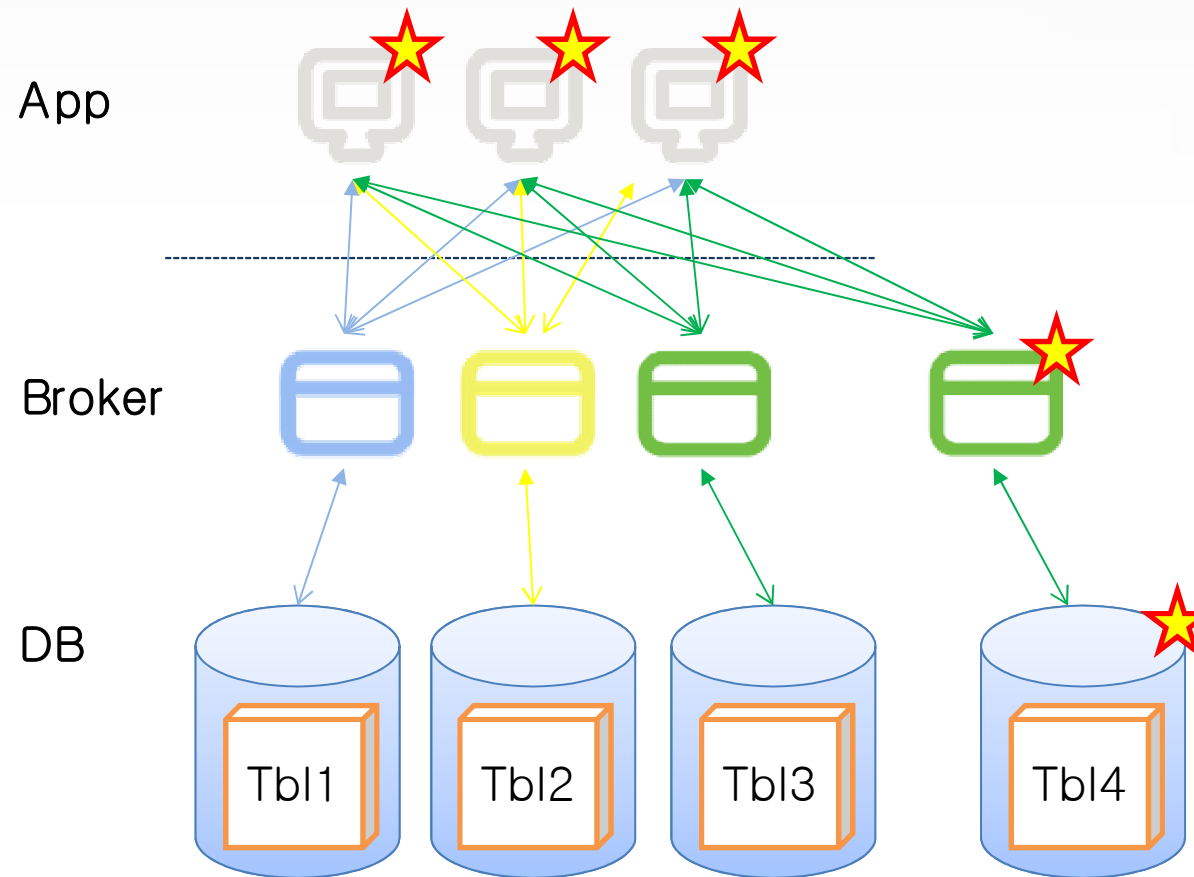


- Sharding

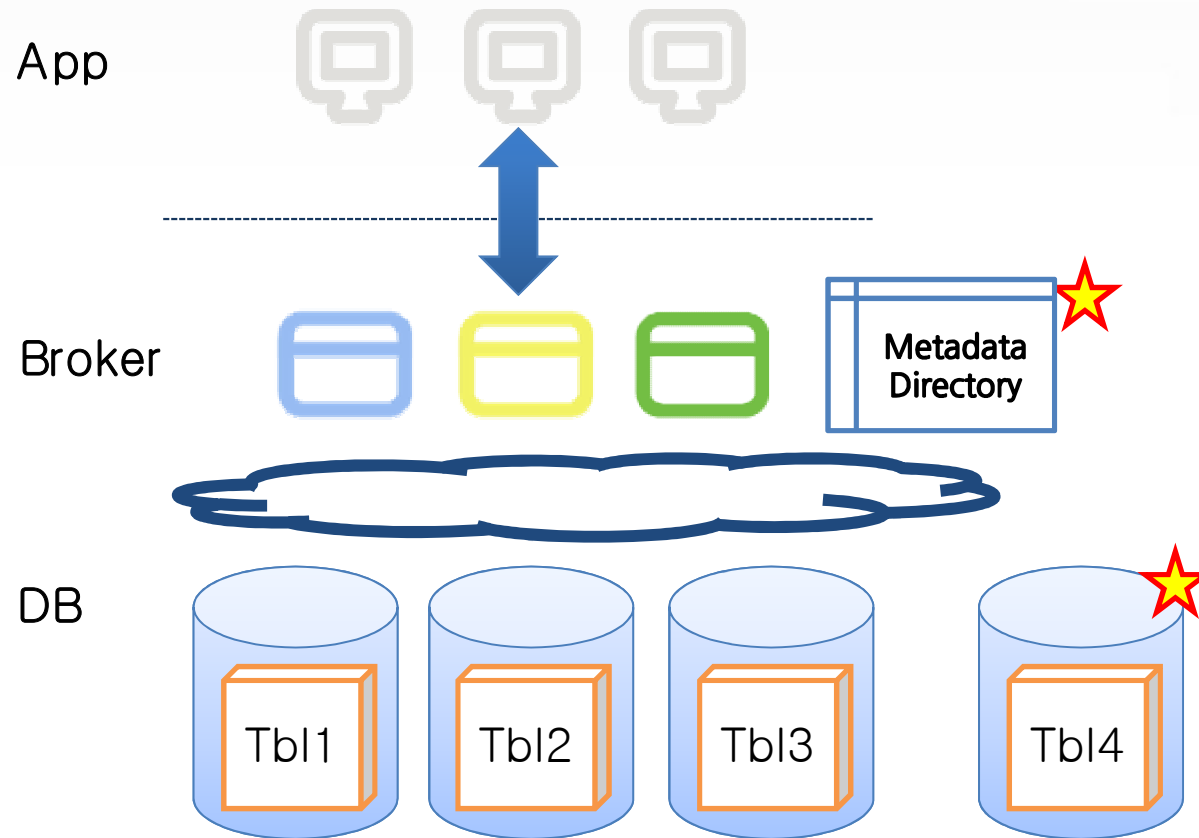
Divide the data between multiple tables created in separate Database Instances



Without Database Sharding



With Database Sharding

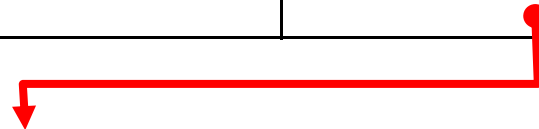


편의성

- ✓ CUBRID Manager
- ✓ CUBRID Migration Toolkit: Oracle, MySQL
- ✓ CUBRID Query Browser
- ✓ CUBRID Web Manager (Apricot)
- ✓ DataWare DA (엔코아)

CUBRID 가격정책

구분	Oracle, DB2, MS-SQL 외	CUBRID
라이선스 비용	O	X
서비스 비용(유지보수)	O	O



개발단계	운영단계				
	Support Service (5 Levels)				
Professional Service (10만원/시간)	Standard Service (3.0백만원/copy)	Enterprise Service (5.4백만원/copy)	Enterprise HA Service (6.0백만원/copy)	Premium Service (7.2백만원/copy)	Premium HA Service (7.8백만원/copy)

(참고 사이트: http://www.cubrid.com/zbxe/service_enduser)

CUBRID vs. Oracle 가격비교

(단위: 원, VAT 별도)

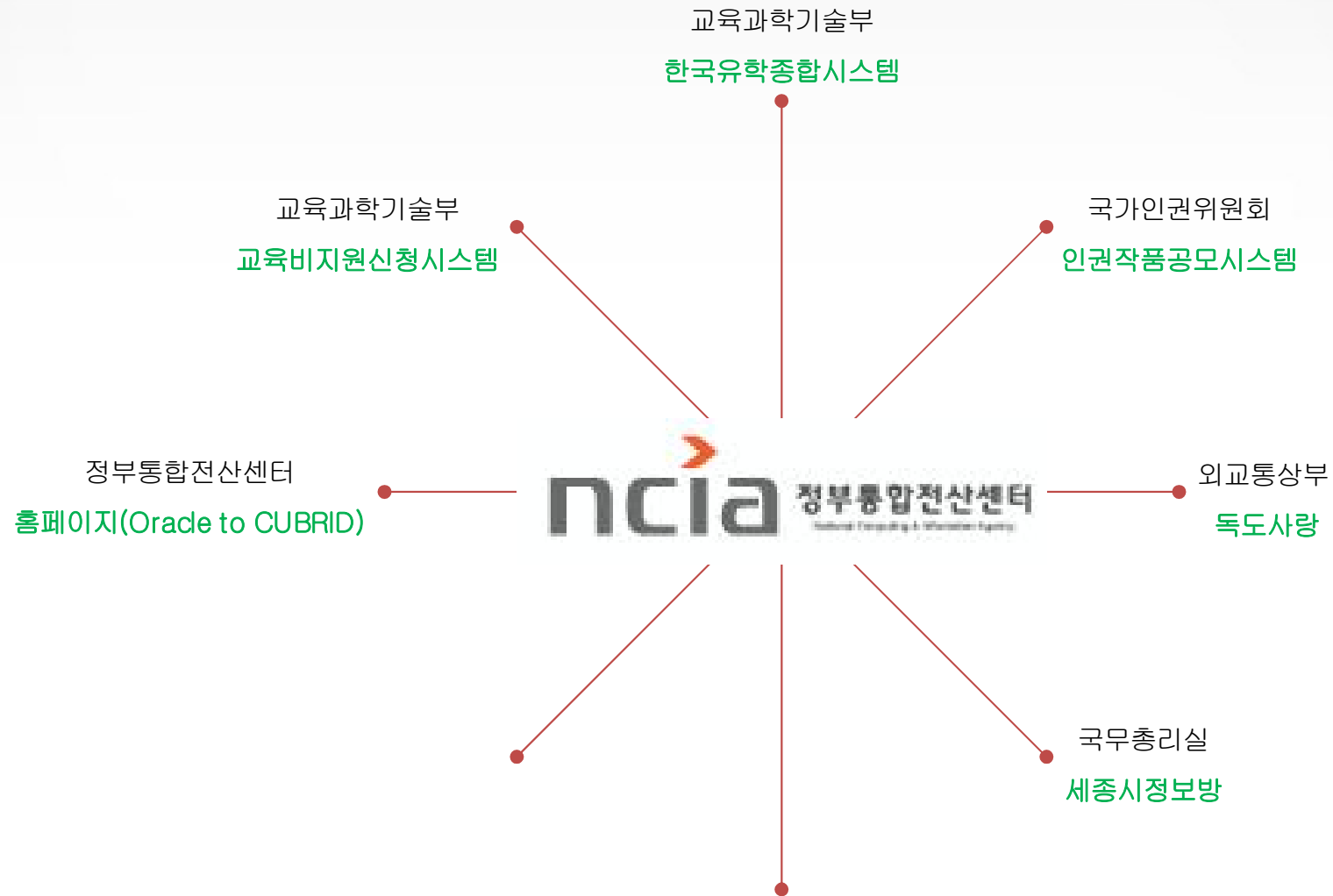
연차	Oracle E.E					CUBRID				
	구분	소비자가격	Core	수량	합계	구분	소비자가격	Core	수량	합계
1년차	License	64,976,438	4	1	259,905,752	Standard Service	3,000,000	N/A		
						Enterprise Service	5,400,000	N/A		
						Premium Service	7,200,000	N/A	1	7,200,000
	합계					합계				
(40% 할인 적용)					155,943,451					7,200,000
2년차	도입가의 22% 적용			1	34,307,559	Premium Service			1	7,200,000
3년차	도입가의 22% 적용			1	34,307,559	Premium Service			1	7,200,000
4년차	도입가의 22% 적용			1	34,307,559	Premium Service			1	7,200,000
5년차	도입가의 22% 적용			1	34,307,559	Premium Service			1	7,200,000
5년간 총소유비용					293,173,688	5년간 총소유비용				36,000,000

“Oracle 대비 10% 내외”

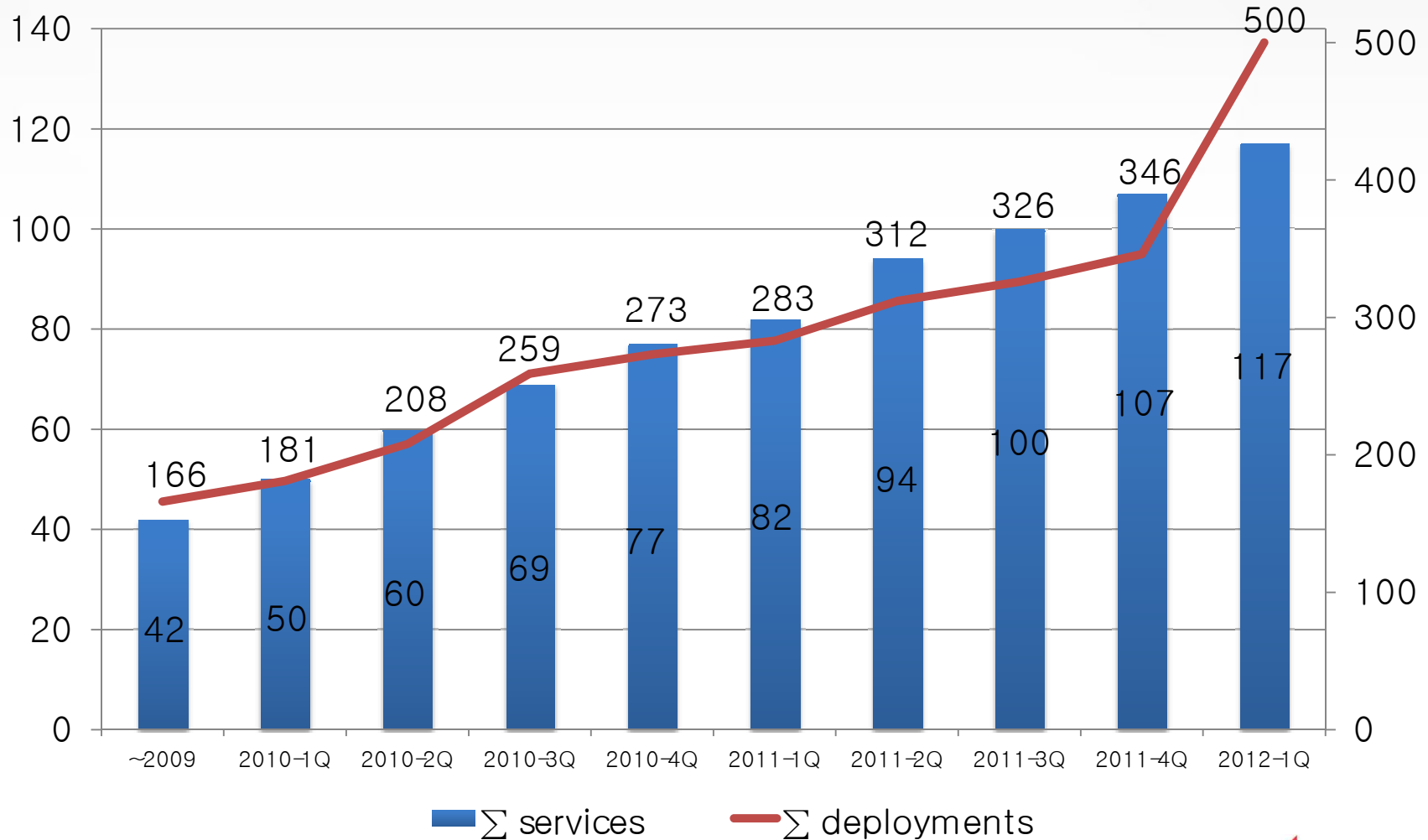
CUBRID 레퍼런스



CUBRID 레퍼런스

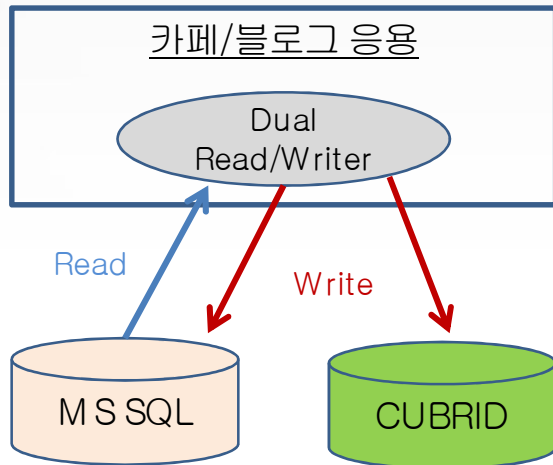


CUBRID 레퍼런스 - NHN

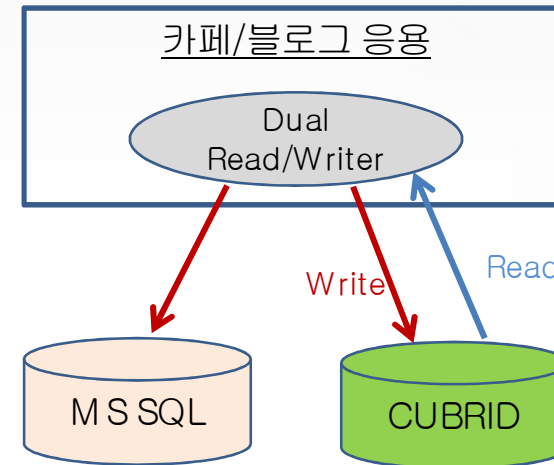


CUBRID 레퍼런스 - NHN 카페/블로그

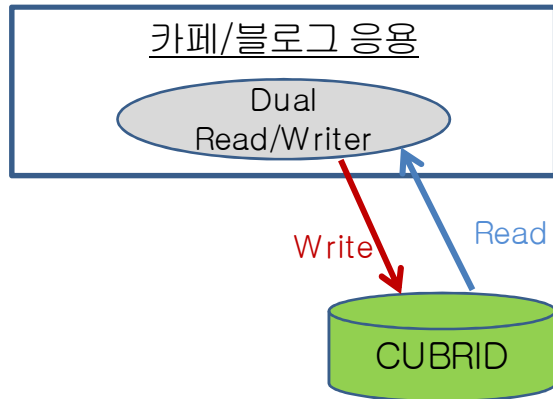
[단계1] 양쪽 쓰기 모드 (CUBRID의 쓰기 성능 검증)



[단계2] M S SQL 쓰기 모드 (CUBRID 전환)



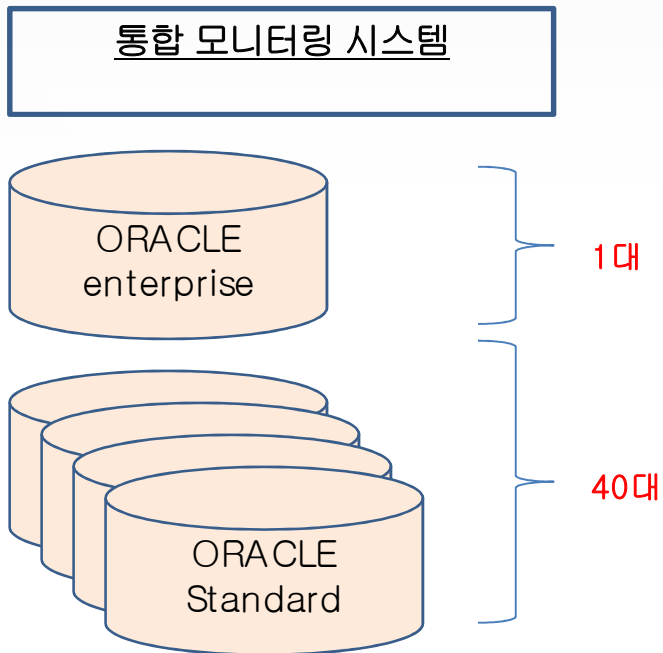
[단계3] CUBRID 단독 운영



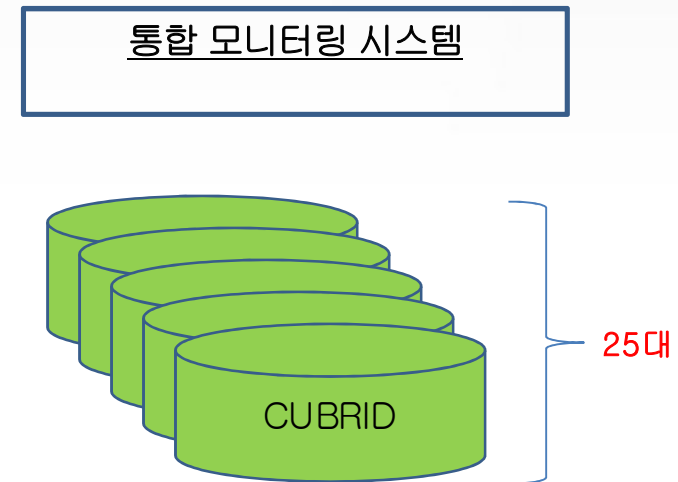
- 8개 DB Master, 8개 Slave, 1개 Archive
- DB 당
 - ✓ 4억 ~ 5억 건 데이터, 총 40억 건
 - ✓ 200G ~ 600G, 총 3.2 TB
 - ✓ 400 ~ 500 QPS, 총 4,000 ~ 5,000 QPS

CUBRID 레퍼런스 - NHN nSight

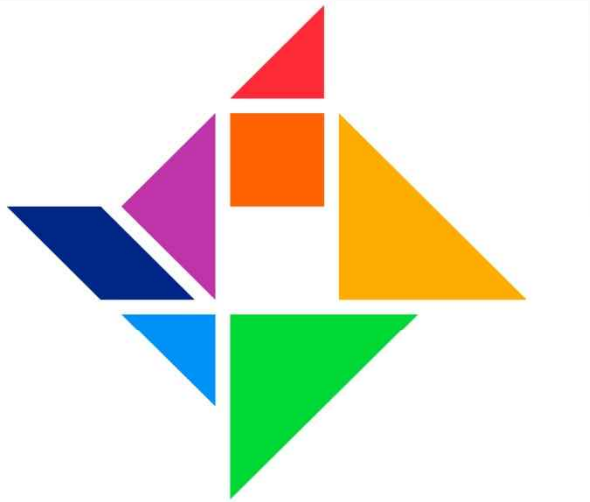
[AS IS] UMS



[TO BE] nSight



- DB 당
 - ✓ 1.5 ~ 2.0 TB, **총 40 TB**
 - ✓ 10,000 inserts per second



CUBRID™