

lenovo® FOR  
THOSE WHO DO.™

# 联想SAP HANA大数据基础架构解决 方案

2015年2月



# 为什么要用内存计算

每天，数以千万计的智能设备、传感器、无时无刻的向后台系统传输着数据，如何将这些实时的数据加工成为实时的信息，为企业提供实时决策的依据？如何更好的实时优化生产、物流，帮助企业可持续性发展？

我们的答案是：

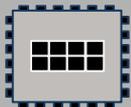
## 内存计算

技术已允许在服务器的内存中处理超大量的实时数据，从分析和交易中提供即时的结果！

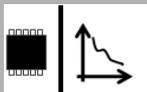
# 内存计算

内存计算是一项新技术。但是，大大提高硬件经济性和软件技术创新能力使SAP能够实现“通过内存业务应用构建实时企业”的愿景

## Lenovo硬件技术创新



- 多核架构  
(8 x 15核CPU/服务器)



- 大规模并行扩展



- 可扩展的内存



- 快速存储IOP

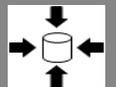


- 大大提高性价比

## SAP软件技术创新



- 行+列存储



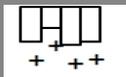
- 压缩



- 分区



- 不提供聚合表



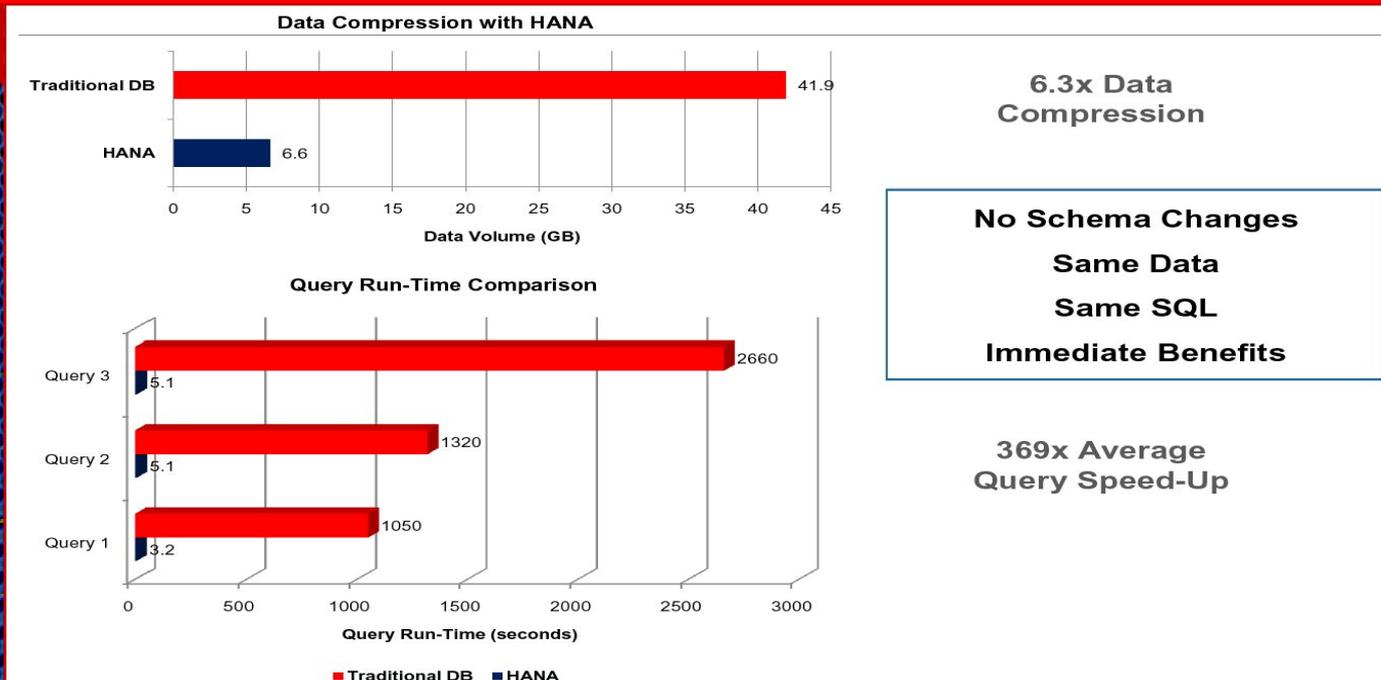
- 只嵌入到数据中

X6



# SAP内存计算(HANA) – 主要特性

相比较于传统数据库，HANA具有6.3倍的数据压缩能力，平均369倍的查询提升能力



来源: SAP (based on data from a big bank)

# 基于SAP HANA的SAP Business Suite 23个业务价值场景

业务线	解决方案领域/业务场景			
财务	<b>会计与财务结算</b> <ul style="list-style-type: none"> <li>快速关账</li> <li>实时的财务绩效管理</li> </ul>	<b>应收账款和应付账款管理</b> <ul style="list-style-type: none"> <li>高效的应收账款管理</li> <li>高效的应付账款管理</li> </ul>	<b>资金与财务风险管理</b> <ul style="list-style-type: none"> <li>集中金库的风险敞口管理</li> </ul>	<b>企业风险与合规性</b> <ul style="list-style-type: none"> <li>访问控制角色分析</li> <li>自动化的跨系统流程控制</li> </ul>
市场营销、销售、服务	<b>销售：订单与合同管理</b> <ul style="list-style-type: none"> <li>优化报价管理</li> </ul>	<b>销售：合作伙伴/渠道销售；销售支持</b> <ul style="list-style-type: none"> <li>洞察力驱动的销售</li> </ul>	<b>市场营销计划与资源管理</b> <ul style="list-style-type: none"> <li>洞察力驱动的市场营销</li> </ul>	<b>客户服务管理</b> <ul style="list-style-type: none"> <li>高效运作的联络中心</li> <li>洞察力驱动的服务</li> </ul>
供应链管理/采购	<b>仓库管理与采购运营</b> <ul style="list-style-type: none"> <li>实时库存管理</li> <li>高效的采购流程</li> <li>战略采购优化</li> </ul>		<b>制造和供应计划</b> <ul style="list-style-type: none"> <li>洞察力驱动的供应链计划</li> </ul>	
企业资产管理	<b>维护运营</b> <ul style="list-style-type: none"> <li>资产利用率和正常运行时间最大化</li> </ul>			
人力资源	<b>核心人力资源与薪资核算</b> <ul style="list-style-type: none"> <li>加速组织变更发布</li> <li>洞察力驱动的人力成本管理</li> </ul>			
制造	<b>生产计划</b> <ul style="list-style-type: none"> <li>实时的物料计划</li> <li>即时的物料流控制</li> </ul>			
研发	<b>企业产品组合与项目管理</b> <ul style="list-style-type: none"> <li>从端到端设计到订单项目管理</li> <li>复杂项目的生产效率和获利能力的最大化</li> </ul>			

# Lenovo面向SAP HANA™的一体机解决方案

## 价值定位

- 最大的集群规模
- 优化的一体机方案
- 利用IBM GPFS并行文件系统
- 基础架构的可靠性，可扩展性，高可用性
- 提供Lab Service原厂实施服务

## 目标客户群体

- 所有ERP和数据仓库客户

## 应用

SAP HANA®



GPFS

FPO功能



OS

Red Hat Enterprise Linux 6.5  
SUSE Linux Enterprise Server 11  
面向SAP应用的优先支持



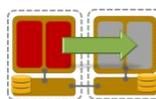
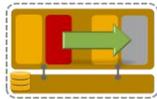
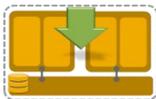
SUSE

服务器硬件

X6 - x3850 X6 和 x3950 X6



lenovo.



# GPFS比其它开源文件系统性能提升10-15%

## GPFS: Better Overall Performance for Analytics

Data storage requires sequential throughput

- GPFS is twice HDFS for sort workloads
- client side caching is a big win (17x throughput speedup observed)

Log storage requires random I/O performance

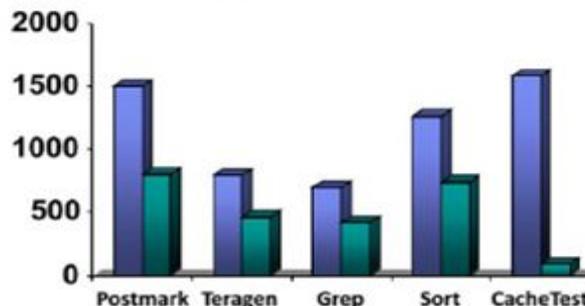
- GPFS and QPI linked 8 socket system provides highest IOPS

## GPFS: Better Overall Performance for SAP HANA

GPFS outperforms ext2/ext3 filesystems

- Up to 11% on log volumes (flash memory):  
163,000 IOPS with eXFlash SSDs  
176,000 IOPS with High IOPS PCIe card
- Up to 15% on data volume:  
from 860 MB/s on small models to 2.0 GB/s on large configuration

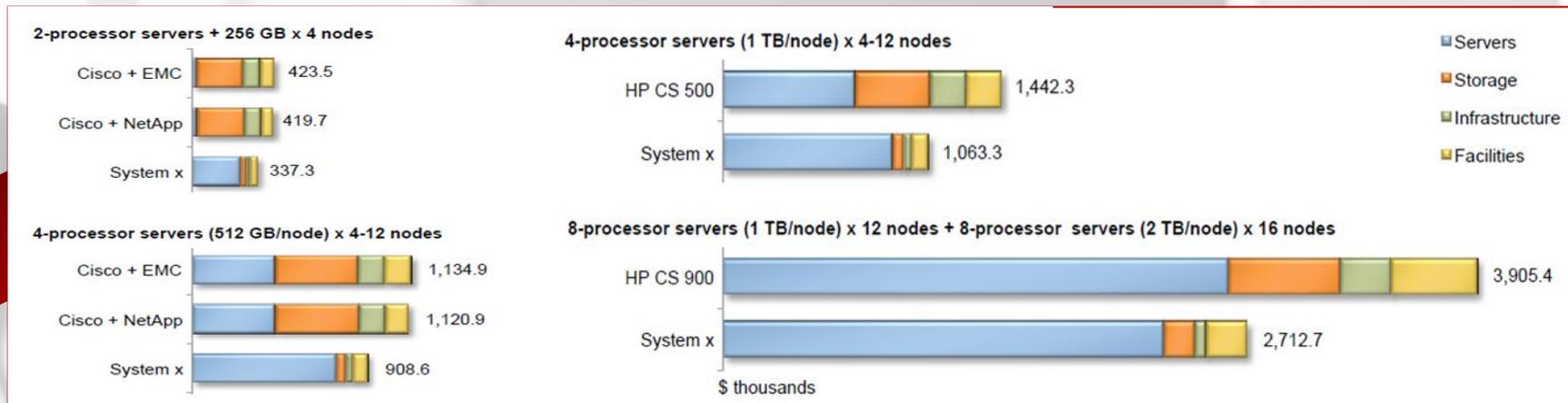
时间 性能指标及指令



对比其他文件系统，GPFS 性能更优

通过GPFS管理，固态硬盘IOPS性能比开源文件系统提升了11%，磁盘IOPS提升了15%。

# SAP HANA硬件三年部署成本 – 集群扩展架构 数据来自ITG



来自第三方ITG的报告，在Intel Ivy Bridge v2平台上HANA各种规格的服务器总成本，Lenovo System x最低

# Lenovo-SAP战略合作伙伴

Rayn Veerubhotla Vice President, Ecosystem Innovation, SAP SE

更可靠，更快交付，更小风险，更低成本

## A Successful Partnership with Lenovo

每年至少30%的增长

市场占有率第一

### Lenovo is the Worldwide Market Leader in SAP HANA Server Shipment Unit Numbers

- Lenovo System x had shipped over 3600 HANA appliances to SAP customers and is the #1 vendor of the SAP HANA appliance worldwide
- System x maintained a healthy 30% YoY growth rate of HANA shipment numbers from 2014/2013 while completing transition from IBM to Lenovo
- Lenovo System x is powering the SAP's HANA Enterprise Cloud

### Long Time Co-Innovation with Lenovo

- Lenovo System x has the broadest portfolio of certified HANA appliances, and continues to lead next-gen Intel Haswell based HANA server innovation
- Close engineering collaboration and joint global support infrastructure
- Lenovo System x is the first HANA co-innovation partner
- Lenovo is the first HANA reference customer in China

创新技术领导者

## Unparalleled Business Value

### Business Value

- Lenovo delivers the value of SAP HANA faster, at lower risk, and at lower cost of ownership
- Lenovo System x (previously IBM's x86 Data Center business) has long track records of successful HANA solution delivery

### Expansion Opportunities

- GTM with Lenovo's Mobility suite (Motorola Mobility)
- Build Big Data solution bundles in selected key industries
- Build China growth plan together

## System x Combined Offers

最大的内存容量认证

### Lenovo Offerings

- Provides HANA appliance for optimum time to value
- Scales from 128GB to 6TB for SoH or 56 x 2TB (112TB) nodes for BWoH
- Choice of rack or converged platforms for appliance or TDI implementations
- Provide trials and loans to accelerate HANA solution sales cycle
- Works with SAP consulting, or major system integrators on joint GTM
- Provides HANA and BWA installation and managed services
- Staffs SAP Centre of Competence for infrastructure sizing, architecture and implementation

THANK YOU GRAZIE MERCI DANKE GRAZIAS 謝謝 СПАСИБО  
GRACIAS OBRIGADO ありがとう DANK TAKK BEDANKT DAKUJEM