

扩大Ceph的影响力

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CEPH & DATA 愿景

未来

数据量持续不断的增加
人们保留并挖掘数据以获取信息/洞察力
90 %的数据在过去**2**年中生成
到**2025**年共会产生**165ZB**数据(来自IDC报告)

Ceph 已实现

开放式解决方案
支持基于开放解决方案的业务流程
使我们能够容纳大量的数据

最新进展

数据块和文件发展迅猛
电信运营商开始应用Ceph解决方案
效率提高**50 %**
硬盘和固态硬盘的发展迅猛

数据增长出现在各个领域



10 GB

普通互联网用户



3000 GB

智能医院



4000 GB

自动驾驶



40000 GB

飞机数据

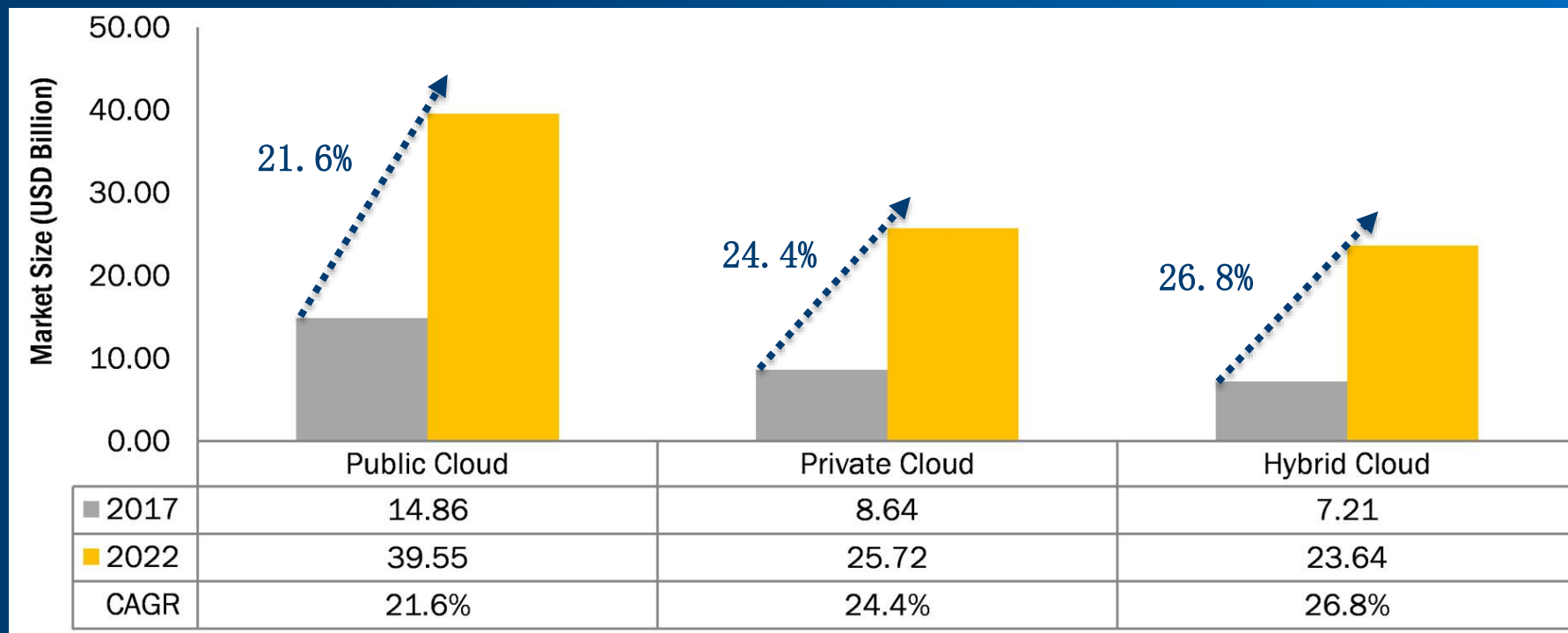


1 PB

智能工厂

1. 来源: <http://www.cisco.com/c/en/us/solutions/service-provider/vni-network-traffic-forecast/infographic.html>
2. 来源: http://www.cisco.com/c/en/us/solutions/collateral/service-provider/global-cloud-index-gci/Cloud_Index_White_Paper.html
3. 来源: <https://datafloq.com/read/self-driving-cars-create-2-petabytes-data-annually/172>

Ceph将推动云存储革命



Ceph全球用户

电信行业



CSP/Web



企业



金融领域



媒体行业



能源领域

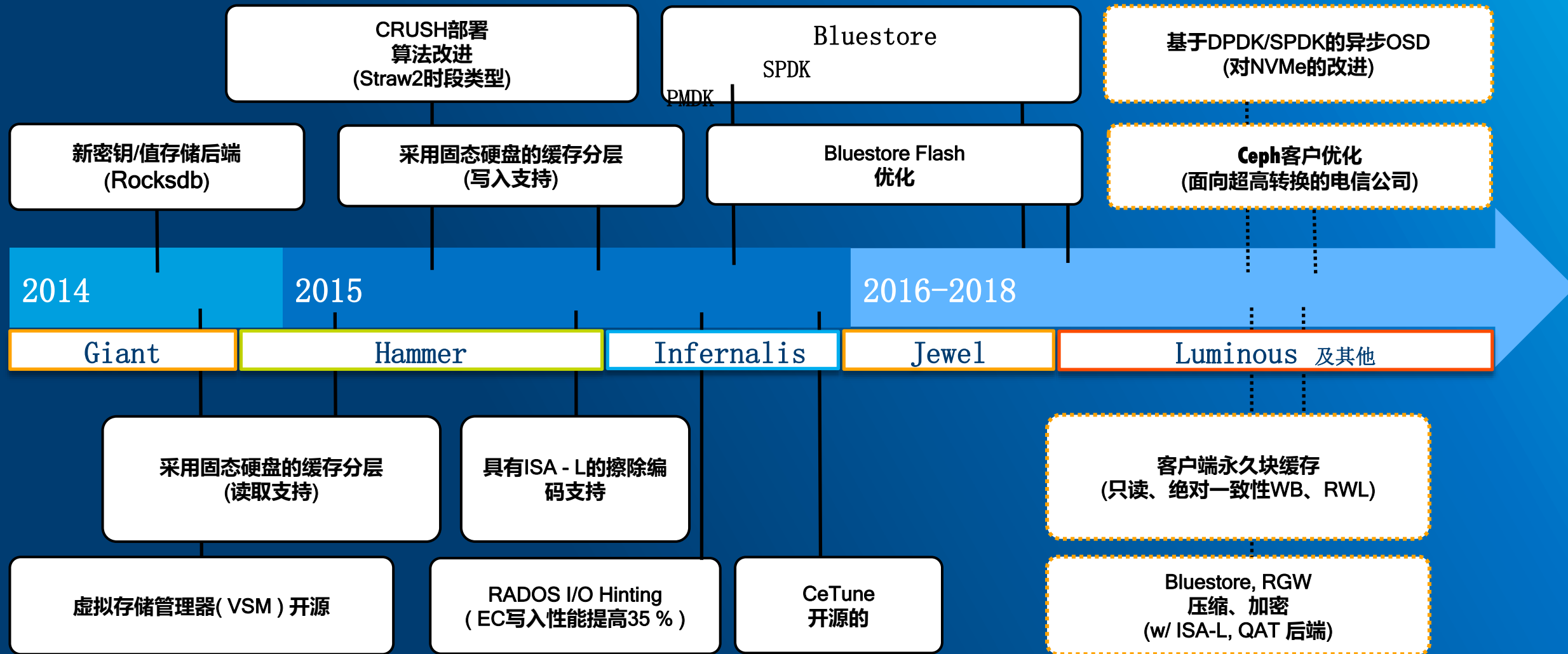


研究机构

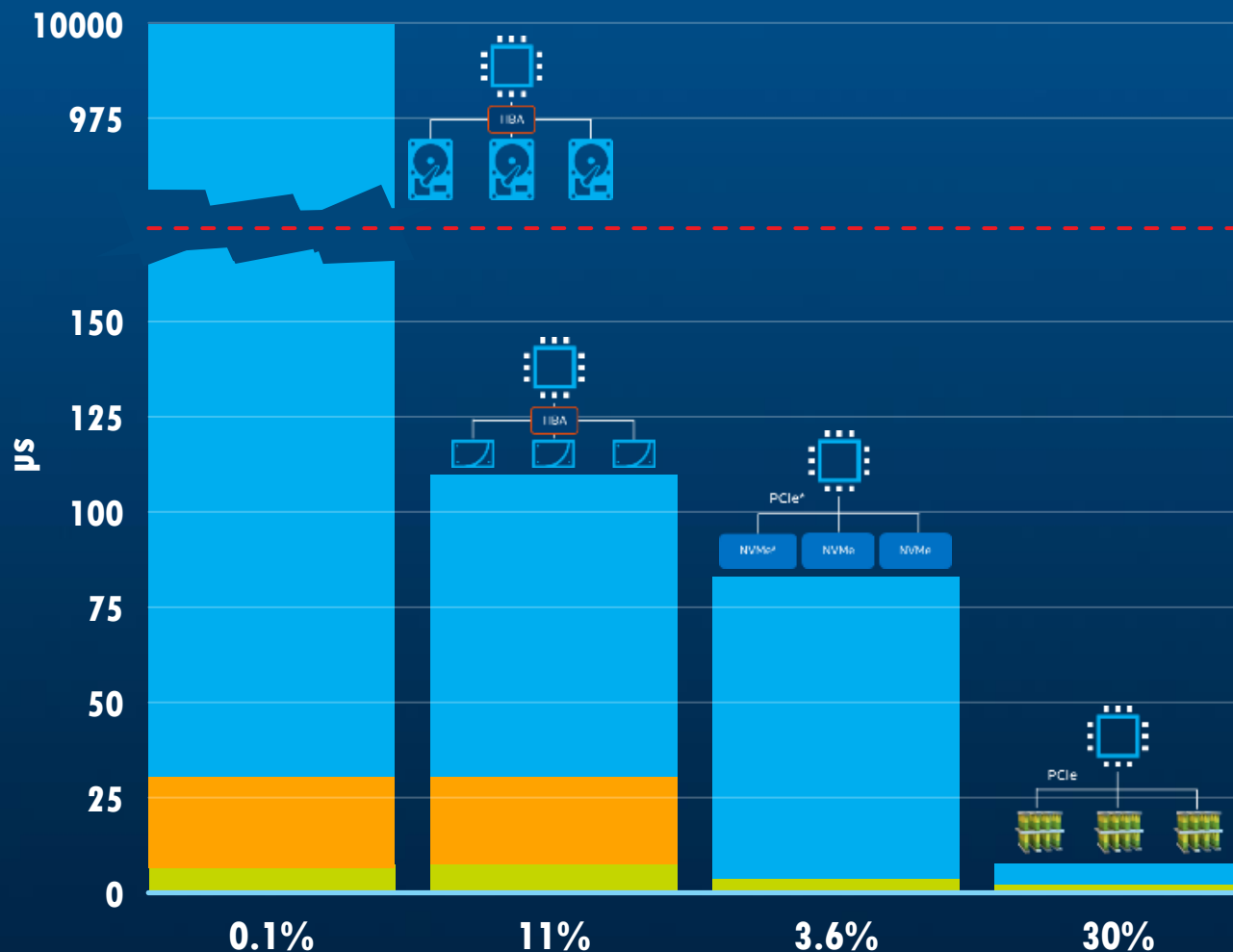


技术趋势

英特尔在Ceph社区贡献历程



非易失性存储器和延迟



技术和架构转变

“更接近处理器”趋势

软件延迟已变得非常重要

<http://ieeexplore.ieee.org/document/8003284/>

以日历时间为进度标准

存储加速 软件



数据平面 开发套件 (DPDK)

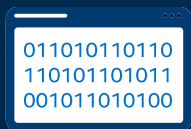
building blocks for fast packet processing
async, polled mode, lockless, userspace
dpdk.org

存储性能开发套件 (SPDK)



high performance storage building blocks
async, polled mode, lockless, userspace
spdk.io

英特尔®智能存储加速库 (Intel® ISA-L)



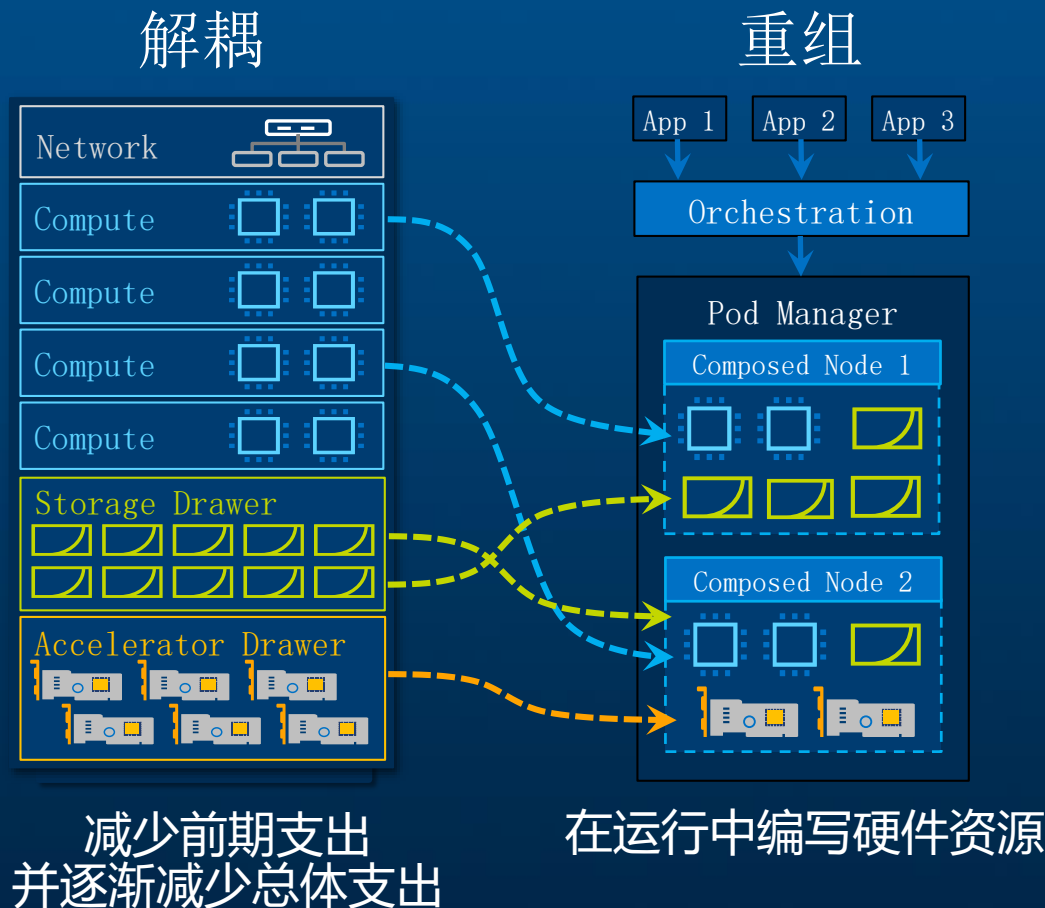
optimized low-level functions for storage apps
EC, CRC, RAID, compression, crypto, hash
github.com/01org/isa-l, [isa-l_crypto](https://github.com/01org/isa-l_crypto)

永久存储器 开发工具包 (PMDK)



libraries for using persistent memory
SNIA NVM programming model
pmem.io/pmdk

解耦: 可扩展性的关键



增加
可用性

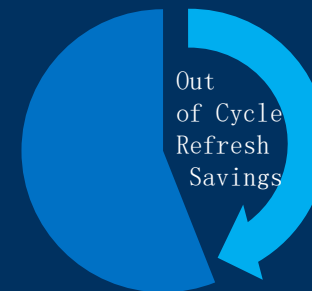


Reduce
Refresh
time

Up to
77%

Potential reduction in technician time per rack update made possible by easier deployment and provisioning¹

降低
成本



CUT your
Refresh
Costs

Up to
44%

Potential refresh savings from better component lifecycle management made possible by disaggregation¹

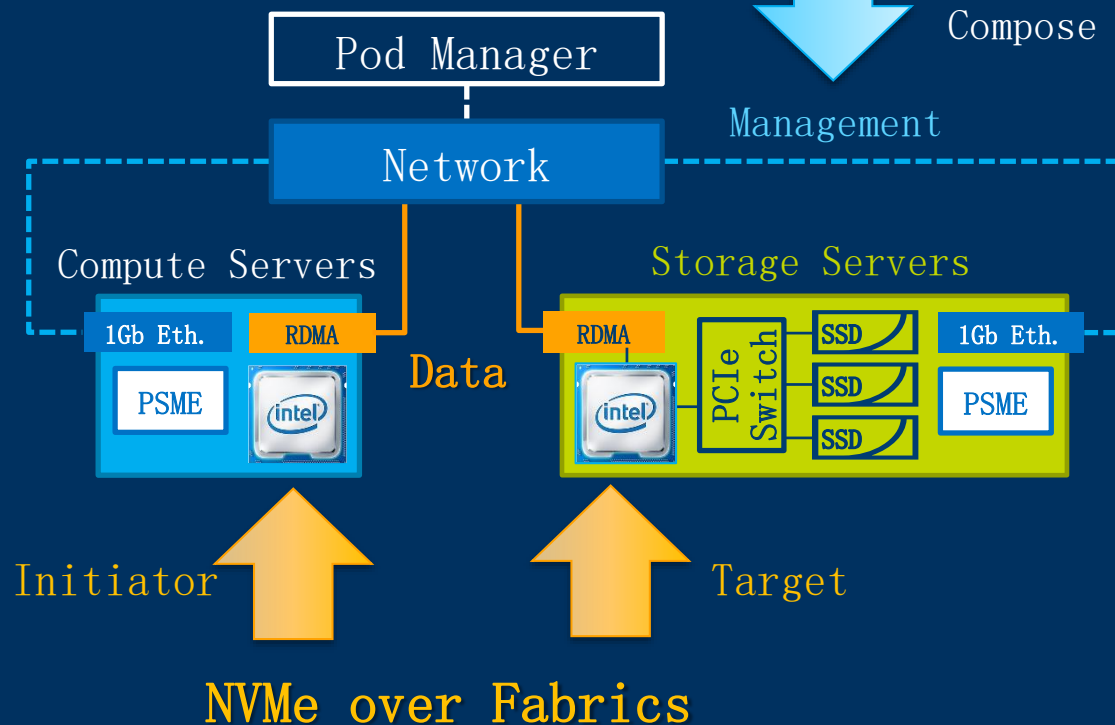
解耦: NVMe over Fabrics

Built on modern,
OPEN standards

“Swordfish”
Storage Management

Configure &
Compose

Management



Swordfish™



Redfish

- Configure Network and Storage for Management
- Compose Storage Resources

bringing **multiple standards**
together under one framework



- Discover Targets
- Connect with Initiators
- Manage Connection

可管理性

- 需要以更标准化的方式将通用工作流自动化
 - Provisioning
 - 运维和监控
 - 诊断和故障排除
- 整合云管理的架构（K8S）
- OPNFV (Open Platform for NFV)
 - 让Ceph更容易地应用到电信行业



让世界 变得更美好

失踪和被拐卖儿童国家中心 (NCMEC)

其任务是帮助寻找失踪儿童、减少对儿童的性虐待和防止儿童受害

面向家庭、受害者、私人组织、执法机构和公众的国家信息中心和资源中心



NATIONAL CENTER FOR
**MISSING &
EXPLOITED**
CHILDREN®

Ceph在ncmec



NATIONAL CENTER FOR
**MISSING &
EXPLOITED**
CHILDREN

- Ceph通过以下方式提供了帮助:
 - 数据库备份和恢复时间从**12小时减少到10分钟**
 - 转换到“按需”服务器购买模式
 - 对托管于CephFS的大型数据集进行生产分析
- 考虑采用Ceph的用户应当.....
 - 亲自尝试DEMO！以周为单位衡量投资回报率
 - 从朋友或顾问处获取有关Ceph的入门知识
 - 利用Ceph API——与Sensu一起使用可大大改进监控效果
- 开发者社区留言:

“NCMEC依赖于Ceph等开源工具以及每天支持它们的社区。没有你们的付出，我们不可能取得现在的成绩。谢谢！”

- Russ Johnson , NCMEC**信息技术总监**

持续创新!

- 保证工作负载交易在10毫秒之内 (databases, AI)
- Non-volatile memory 编程 模式
- Disaggregation with NVMe-over-Fabrics
- 可管理型 - 降低用户使用门槛



eKing Technology
易 | 建 | 科 | 技

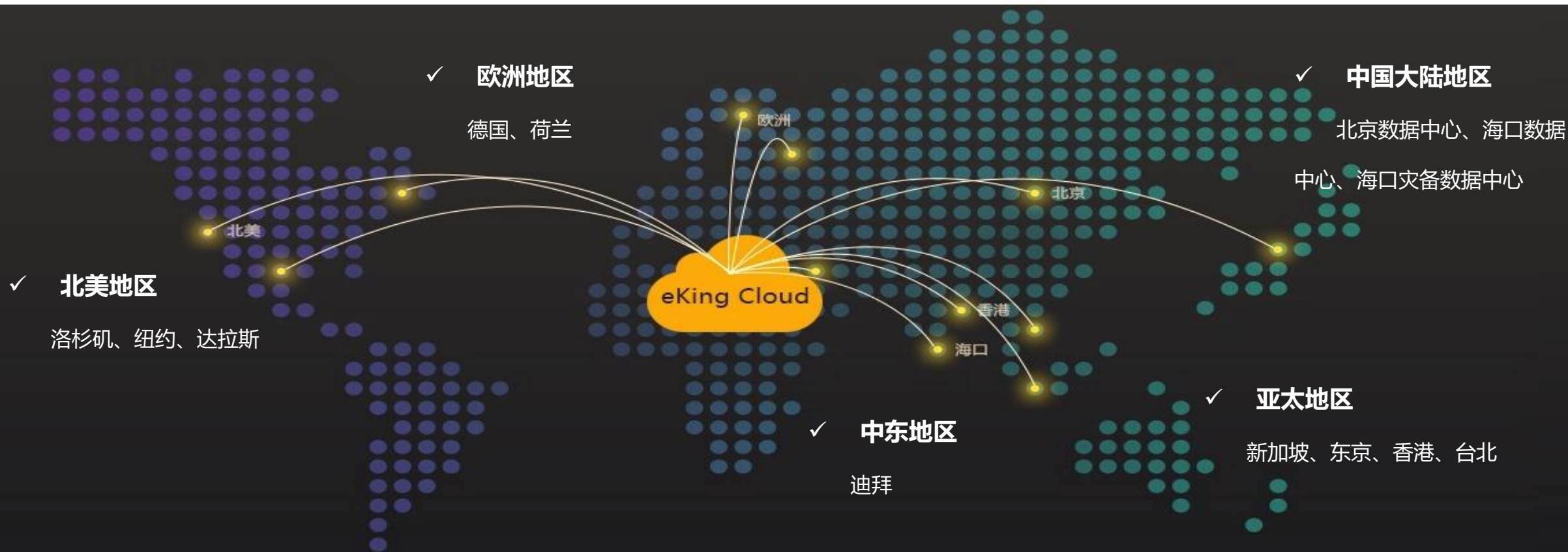
钟忻

海航易建科技技术副总裁兼云服务事业群总经理

海航eKingCloud基础云

海航eKingCloud基础云覆盖七个国家十三个大区域，形成全球化战略布局，承载海航整体业务系统部署，满足业务运行稳定性要求，业务运营创新性需求，航空和金融相关监管要求，同时实现多地容灾备份和数据保护，助力海航国际化发展

海航业务系统截至2018 H1云化比例将达**80%**以上，实现**700+**套业务系统上云



海航eKingCloud基础云创新理念

采用“**OMEGA**”架构设计理念，推进海航eKingCloud基础云产业化落地
统一的技术栈具备通用性和独立性，可快速交付并灵活扩展，推进创新速度

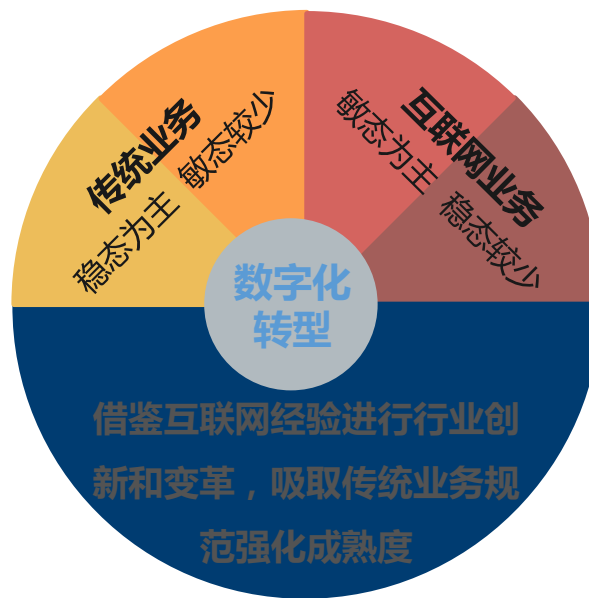
互联网行业是开源技术的践行者

随着云计算和大数据的快速发展

采用开源技术构建技术架构已经成为主流选择



- ✓ 开放的架构设计
- ✓ 良好的生态系统
- ✓ 活跃友好的社区



政务



地产



航空



旅游



建筑



物流



健康



金融



机场



应用



演进



生态



Open

开放

Modular

模块化

Evolving&Enterprise

双态演进 行业变革

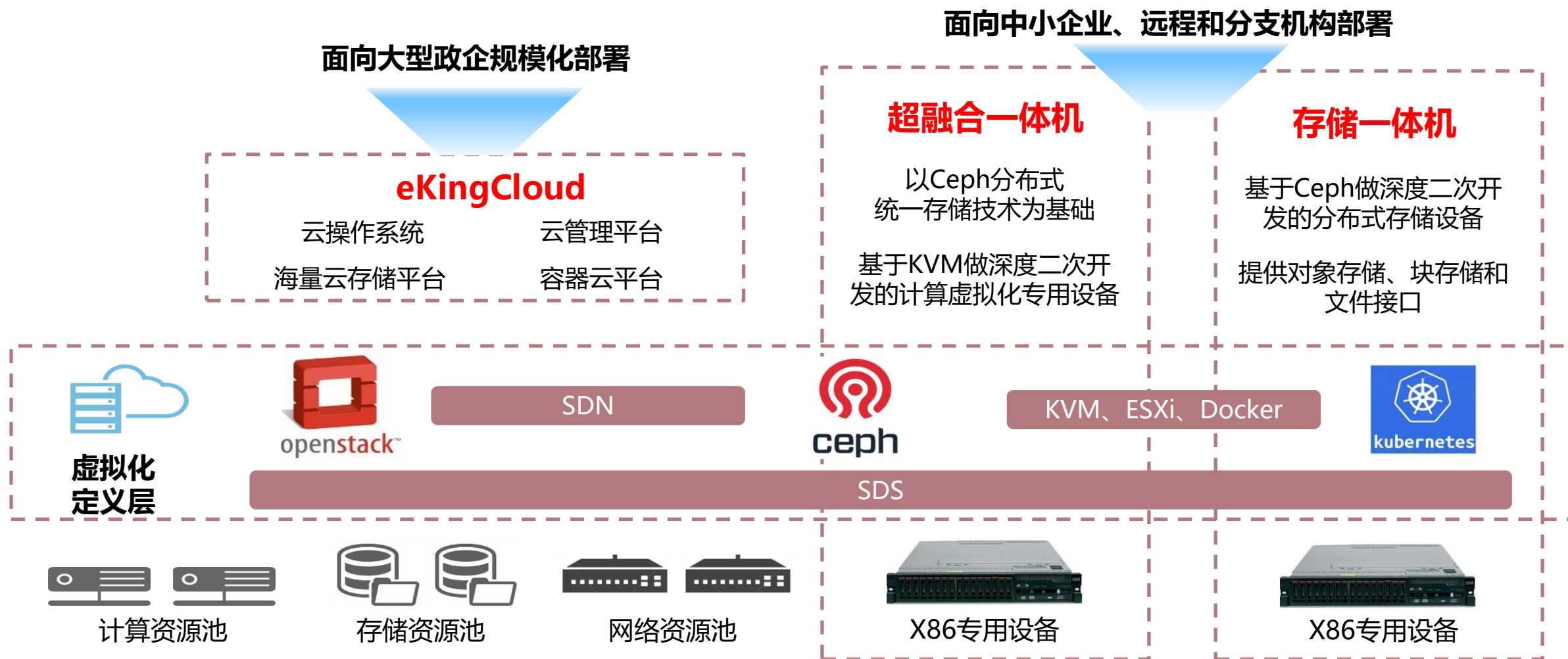
Global

全球化

Architecture

融合架构

海航eKingCloud产品体系



海航eKingCloud与Intel深度合作

✓ 云存储数据加密

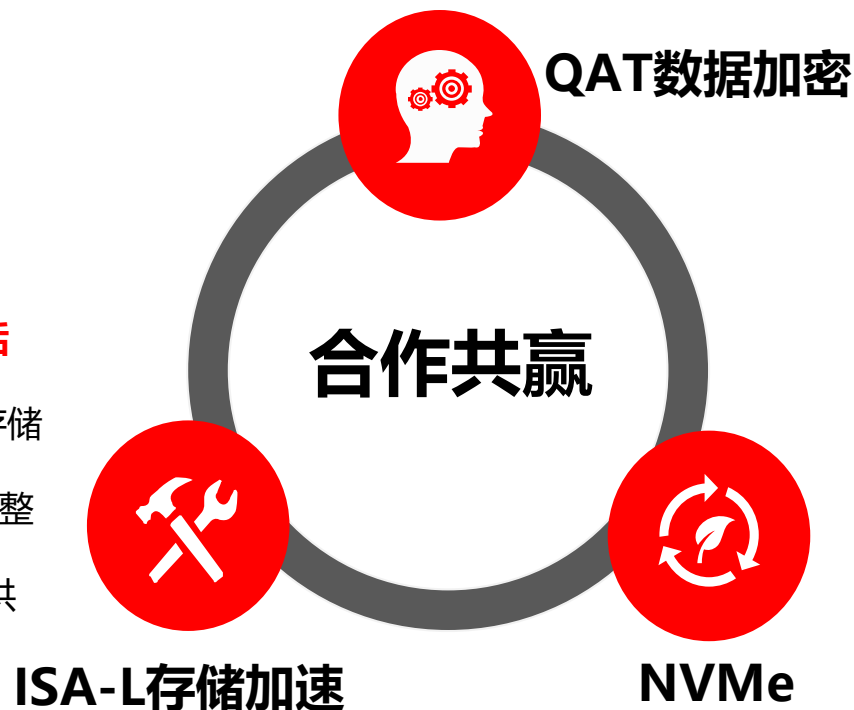
降低CPU开销 加快加密速度 提升服务性能

QAT技术，实现数据加密算法中的加密运算和数据压缩/解压运算

✓ EC集群

提高存储吞吐量 减少空间使用量 安全灵活

通过在EC纠删码环境下对ISA-L使用，实现存储加速，对Ceph的存储数据可恢复性、数据完整性、数据安全性以及加速数据压缩等方面提供了帮助



✓ 全闪存

性能测试调优 SPEC验证

eKingCloud验证了 Intel P3500、P3700、P3520、S3500四类SSD在Ceph下的性能

Notices and Disclaimers

Performance estimates were obtained prior to implementation of recent software patches and firmware updates intended to address exploits referred to as "Spectre" and "Meltdown." Implementation of these updates may make these results inapplicable to your device or system.

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Benchmark results were obtained prior to implementation of recent software patches and firmware updates intended to address exploits referred to as "Spectre" and "Meltdown". Implementation of these updates may make these results inapplicable to your device or system.

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Test Configuration: Intel® Xeon® Processor E5-2600v3, E5-2650v3, 10C, 2.3 GHz, M1, Aztec City CRB, 4x8 GB DDR4 2133 MT/s ECC RDIMM. Intel® Xeon® Processor E5-2600v4, E5-2650v4, 12C, 2.2 GHz, M0, Aztec City CRB, 4x8 GB DDR4 2400 MT/s ECC RDIMM. Intel® Xeon® Processor Scalable Family, Platinum 8180 Processor, 28C, 2.5 GHz, H0, Neon City CRB, 6x16 GB DDR4 2666 MT/s ECC RDIMM. BIOS Configuration: P-States: Disabled, Turbo: Disabled, Speed Step: Disabled, C-States: Disabled, Power Performance Tuning: Disabled, ENERGY_PERF_BIAS_CFG: PERF, Isochronous: Disabled, Memory Power Savings: Disabled ISA-L 2.19