Linux and Open Source Software

Applying the Learnings of the Past to the Future

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Looking way (way) back
Today’s Realities & Challenges
The Growing Role of Open Source Software Beyond Linux
Essential Guidance
State of the Industry in 2001

In February 2001....
- George W. Bush had just been sworn in as 43rd president
- Wikipedia went online Jan 15
- FTC approved merger of AOL and Time Warner
- MacOS X was about to release (on March 24)
- Windows XP would release in August
- The .COM bust was in full swing; stock market was on the way to a low point later in the year
- Much of the market’s losses blamed on over-valued tech companies, pumped up by Internet-sized expectations
- Meanwhile, Linux was scoring wins with its low/no cost of acquisition for budget-starved IT shops
Respondent motives for moving to Linux are strikingly consistent with the 1999 data – it’s the economy

- Price, reliability, COO seen as advantages
- Built-in features attractive
- Open source, Internet cited as motivations
- Internet-ready diminishing value; becomes “the fabric”
- Thankfully, “believe in Linux” was fading as a driver (more mainstream adopters)

Source: IDC Linux Marketplace Study, 1999 and 2001
Linux Hurdles Cited

Skills was the #1 or #2 challenge
Skills challenge still rings true today
Skill shortages today for emerging projects/prods
We hear the same concerns related to:
  - OpenStack
  - Containers
  - DevOps
  - CNAs
  - IoT
  - And….
State of the Industry in 2008

- In February 2008….
  - iPhone had been on the market for 8 months
  - Oil had crossed $100/barrel for the first time in January
  - Stock markets around the world plunge on fears of a recession caused by the US subprime mortgage crisis
  - On Feb 5, DJIA falls 370 points, S&P drops 3.2%. On September 29, the Dow would drop 777 points
  - Fidel Castro about to announce his resignation (2/24)
  - In June, Bill Gates steps down from chairman post
  - IDC presents “The Role of Linux as a Next Generation Business Server” at The Linux Foundation Collaboration Summit in April, 2008
From IDC’s 2008 Presentation

Server Deployment User or Intentions
Sorted on 2004-2006 shifts (3% or > change)

E6. For which of these server workloads do you use or intend to use Linux?

Positive shift toward business workloads

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Source: Linux Marketplace Study, 2007 and 2005

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Top-Down Credibility

Setting the Stage for Future Open Source Software

- Grass roots not growing: Linux gains credibility with top management
- Mission-critical workloads and acquisition of enterprise servers growing

E2b. Which of the following statements best describes your org's strategy and direction regarding Linux on servers?

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State of the Industry in 2017

- In February 2017….
  - Donald Trump had just sworn in as 45\textsuperscript{rd} president
  - Stock market surpassed 20,000 for the first time
  - Ubiquity of online content, social media fosters info overload; mass dissemination of misinformation
  - Dell-EMC Merger recently completed
  - HPE paring back SW portfolio w/sale to Micro Focus
  - Amazon and VMware announced cloud partnership
  - MSFT acquires LinkedIn; Xamarin; joins Linux Foundation
Paid vs. Nonpaid Server OS Forecasts

Worldwide Operating Systems Shipments, Subscriptions and Nonpaid Deployments, 2007-2020 (000)

Source: IDC System Software Research, December 2016
Digital Transformation Becomes Key

Standardization of Infrastructure

Interconnection of Systems

Intellectual Property

Social Data, Mobile Data

IoT and Other Data

Decision Support

Real Time Analytics

Source: IDC Developer Research, December 2016
Digital Transformation Made Possible by Open Source Technologies including Containers, Cloud Native Apps

To remain competitive:
- Embrace standardized infrastructure
- Modernize apps application
- Embrace DevOps, priv/pub cloud

Standard infrastructure enables:
- Rapid iteration
- Disruption of competitors
- Deployment flexibility
Applications Become the Pivot Point

- Apps divide into “legacy-” and “cloud-native” apps
  - Most of today’s installed apps will eventually move to, and live on in cloud … forever
  - Few applications become true cloud applications; even fewer need to
  - Expect a lot of “lift and shift” where existing apps are plunked into a container and run in cloud, in their full monolithic glory

- Starting points dictate end points for existing applications
  - MSFT will move Win apps to MSFT cloud
  - VMware unlikely to migrate Windows apps off Windows
  - Linux apps move to public cloud on Linux

- Cloud native apps will emerge as the new battleground
  - Every vendor is scrambling to field a viable CNA strategy
  - Opportunities grow to manage, migrate and lifecycle legacy apps
  - CNA s will present opportunity, but expect a round of consolidation among current high-flying startups in the CNA space.
How Customers Feel About Infrastructure

- Classic apps are married to a given OS/system software stack
- Cloud native apps *not* married in the same way, but....
- Transitions are slow, but most growth is in new deployments
- Virtualization was a key enabler, but today is at a crossroads
- Standardization remains one key focus area for IT
  - Standardization is a precursor for future cloud adoption
  - Meanwhile, virtualization still a key onramp for private/hybrid cloud
- Application design is fundamentally changing
  - OS APIs are something to be avoided, not embraced
  - App frameworks key to next generation PaaS adoption
  - Old apps stay on current framework, probably forever
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Open Source in Today’s World

Linux

Applications

Infrastructure SW

Data and Middleware

Developer Tools
Enterprises Prefer Commercialized DevOps
Open Source Products Technologies

Q: Rank order your organization’s preferences for sourcing options that will be used to acquire DevOps enabling technologies over the next two years with 1 as the most preferred type

1. **Series1:** 45%
   - **Series2:** 26%
   - **Series3:** 15%

2. **Series1:** 20%
   - **Series2:** 26%
   - **Series3:** 25%

3. **Series1:** 20%
   - **Series2:** 21%
   - **Series3:** 29%

4. **Series1:** 15%
   - **Series2:** 27%
   - **Series3:** 30%

n = 100  multiple selections permitted  Source: IDC, Early Adopter DevOps Survey, IDC, July, 2016
Process Fragmentation, Lack of Mature Product DevOps Challenges

Q: What are your organization's top technology challenges when implementing DevOps?

- Smaller enterprises more likely to think workloads are not suited for DevOps
- Largest orgs most likely to suffer from fragmented processes

- Fragmented processes: 34%
- Tools and products not mature enough to support large scale: 34%
- Existing Security tools are not DevOps-friendly: 29%
- Workloads not suitable for DevOps: 27%
- Lack of continuous integration and enabling dev tools: 25%

n = 100  multiple selections permitted  Source: IDC, Early Adopter DevOps Survey, IDC, July, 2016
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- Cloud native apps will be architected very differently
- App frameworks, data structures, deployments changing
- Cloud-native apps seek to be more platform independent
- A Darwin evolution of containers + orchestration not done yet
- Development of containerized apps still in infancy among large organizations; but adoption will become strong
- Most existing apps won’t be replaced/rebuilt; rather will be augmented and extended using cloud native apps
- Open source software is increasingly becoming the foundation for modern apps, and the tooling for building them
- Training, skills enablement has been, continues to be a drag
Thank You

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