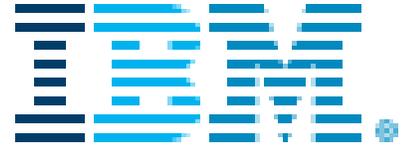




IBM's LinuxONE – Penguins in the Enterprise

Ever since IBM made a huge (\$1 billion) commitment to Linux, its growth on the mainframe has been spectacular. It has a 10-year compound annual growth (CAGR) of 45%, as 27% of all shipped mainframe capacity is Linux specific. Linux on the mainframe has penetrated the majority of IBM's large clients.



Now, Linux is the fastest growing OS in the broader market and IBM plans to capture a portion of that growth for the mainframe. LinuxONE is their strategy to do so.

What's the connection between IBM's new LinuxONE offering and the search for a cure for the deadly disease, ALS¹? You might say "Nothing" or "Not much", but that's wrong. Read on to discover how IBM's LinuxONE platform plays an important role in the search. But, before discussing IBM's contribution, let's review the LinuxONE offering.

IBM believes combining the best of Linux with the best of enterprise computing can be a real winner. They expect the new LinuxONE² offerings will appeal to customers already familiar with Linux, but who know little about the mainframe. This reasoning appears correct to us with the potential of a very successful system.

What's new in the strategy? What difference does it make? First, we'll look at the new items by categories:

1. Expanding relations with Linux Community
2. LinuxONE introduces new Cloud offerings
3. LinuxONE Hardware Systems
4. Software
5. Pricing models

These mark a major change in mainframe direction, as well as an expansion outside the traditional customer base.

1. Expanding relations with Linux community

IBM's Systems division increased their exposure and efforts with the Linux Foundation. The Foundation, along with 11 other founding members, including IBM, CA Technologies, SUSE and BMC, established the Open Mainframe Project³ to partner with government, academia, and industry to advance Linux on the mainframe by sponsoring joint development and free education efforts.

¹ Amyotrophic Lateral Sclerosis (ALS) or Lou Gehrig's (a famous American baseball player of the 1930) disease is an incurable, progressive degenerative neurological disorder.

² You can start here: http://www-03.ibm.com/systems/z/os/linux/enterprise_linux_os_infographic.html, and see the announcement here: <http://www-03.ibm.com/press/us/en/pressrelease/47474.wss#release>

³ See <http://www.linuxfoundation.org/news-media/announcements/2015/08/linux-foundation-brings-together-industry-heavyweights-advance>



In addition, IBM provides proprietary technology to the open community. Specifically, they are providing IBM IT predictive analytics technology, called zAware, for use in other environments. IBM zAware analyzes running environments to provide early notice of emerging problems before failures occur. Previously only available for IBM z/OS environments, it was recently extended to LinuxONE.

2. *New LinuxONE Clouds*

Several LinuxONE system-based clouds are available now or will be by year's end. One permits IBM clients to test applications for LinuxONE⁴. Another, through PartnerWorld, allows ISVs to port, test and bench-mark applications they are considering for a move to LinuxONE. Finally, partnership universities will offer a cloud-based learning sandbox to students, developers and entrepreneurs. The latter two will initially be available for free.

Global Health Challenge on LinuxONE cloud

To demonstrate the benefits of its approach, IBM is assisting a Global Health Challenge to research ALS. Not much progress has been made since Lou Gehrig died from the disease in the early 1940's. One of the barriers has been the difficulty in consolidating patient data as disease behavior is unique for each patient. IBM is collaborating with numerous organizations to collect data and provide analytic tools in a LinuxONE system⁵ Cloud.

3. *New LinuxONE Systems*

The key part of the announcement are two new systems: Emperor and Rockhopper. IBM broke its traditional naming conventions (e.g. z13, z12, p770, p550, etc.), instead opting to use the names of penguin species, Emperor and Rockhopper⁶. The *z13-based* Emperor is the largest, most scalable Linux system; the *z12-based* Rockhopper is the entry-point system to the family with the same capabilities available in a smaller package. Ross Mauri, IBM z System General Manager emphasized that advances and benefits in technology, software, etc. will be consistent across z System and LinuxONE families. Elastic pricing models (discussed later) apply ONLY to LinuxONE systems.

A digression on Penguin species

The Emperor name fits well. However, our research on Penguin species reveals what might be better names for the entry system. There exists species called "Little Blue", "King" and "Royal" and "Macaroni" – the last probably wouldn't pass. However, we expect Rockhopper will remain.

4. *LinuxONE Software*

In addition to new server hardware, IBM announced major software enhancements for both IBM z and LinuxONE. One key new software offering is the Linux distro of Ubuntu, expanding the potential client base to those preferring that brand. This adds to the existing availability of Red Hat and SuSe. IBM also added the KVM hypervisor to appeal to those who favor KVM. Finally, IBM

⁴ Free remote access for a limited time, check with your IBM rep.

⁵ For more information see <https://www.synapse.org/#!/Synapse:syn2873386/wiki/>

⁶ As "Rockhopper" reminds us of "Clodhopper", we couldn't resist researching penguin species for other names.



now supports VMware vRealize Automation to attract customers who rely on VMware virtual systems management to handle LinuxONE or the mainframe environment. IBM has added more open source software choices for database, management, languages and analytics. Check the specifics to see if your favorite products are available.

5. Pricing models

To make their offering even more attractive, IBM introduced lower cost “elastic pricing” options for the entire LinuxONE line. “Elastic pricing” means there are multiple alternative purchasing models including “usage-driven” consumption pricing. Ross Mauri discusses these options⁷, as well as the future of z/OS and the commitment to shared enhancements. The announcement did not include more detailed pricing data.

Relationship between traditional mainframe Linux and LinuxONE

IBM took pains to make clear that they are not forking Linux or its software. Nor, are they separating traditional mainframe Linux from LinuxONE. All the new software announced for LinuxONE will be available for use by existing mainframe customers. Presumably, the only difference from the standard mainframe will be in the packaging and pricing of the LinuxONE systems. Few details have been released about the internal architecture of the LinuxONE family. We do know they are full mainframe servers, not modified IFL servers.

Possible barriers to growth of the Linux base

Having covered the key points of the LinuxONE systems, we move on to consider some of the obstacles that IBM may encounter as they pursue new market territory.

IBM aims to grow the mainframe Linux base by attracting new Linux customers to the platform, especially those not using IBM products today. Moving outside the existing IBM base has its own risks. See the box at right.

Now, we KNOW that the first two barriers are actually perceptions with limited validity. Unfortunately, the last has substantial validity. The perceptions persist that mainframes are too expensive and obsolete. They are kept alive by competitors and some pundits. Their influence should not be underestimated. IBM has made on-going efforts to refute them for years. Let's examine what can and is being done to address these obstacles.

Three Possible Barriers to Growth

- 1) Mainframe is too expensive.
- 2) Mainframe technology is obsolete
- 3) Lack of mainframe skills

Overcoming the barriers – 1

IBM's existing mainframe pricing scheme works reasonably well with established mainframe accounts. However, it lacks transparency. Existing customers have found various ways around

⁷ See his interview at <http://www.datamation.com/data-center/linuxcon-ibm-admits-zos-is-still-better-than-linux-for-some-things-video.html>



this. In fact, a profitable third-party industry exists to help users figure out mainframe pricing and costs.

As IBM works to attract off-base Linux customers, changing to an open, transparent and easy to understand pricing model could be key. IBM promises elastic pricing that lowers LinuxONE server costs. Unfortunately, they did not provide data to verify this.

The Linux market segment is all about openness and transparency. The model itself remains a topic for discussion. But, in today's marketplace plenty of competitive pricing data appears all over the Web. IBM says their pricing is elastic and cheap, and it may well be, but it is difficult for customers to calculate. Therefore, competitors and others challenge their statements; and the fiction continues. With more transparent prices, IBM would have a much easier task convincing customers of mainframe affordability.

Overcoming the barriers – 2

To counter the “mainframe technology is obsolete” claim, IBM should explain the mainframe's development, and show how its “feeds and speeds” compare with the rest of the industry. They have made a good start on this. They should take care to avoid using classic mainframe terminology that does not resonate with people lacking a mainframe background. One example, avoid using the term “MIPS”; a million anything is inconsequential nowadays, and especially so when the measurement is completely foreign to the audience.

Overcoming the barriers – 3

Finally, we come to the lack of mainframe skills. There is a long term and a couple of short term answers. In the long term⁸, the LinuxONE systems could change all messages and systems communications to terms understood by trained Linux system administrators. The changes would make LinuxONE systems management relatively easy for the large number of available Linux Sys Admins. Yes, these types of changes to the mainframe would take time. They would be neither trivial, nor easy, but well worth the effort.

Short term suggestions. Customers have long depended on IBM Red Books to understand and use IBM products. A red book entitled “Mainframe systems management for Linux system administrators” would be a Sys Admin's cookbook for management of the LinuxONE mainframe. Accompany this with a class following the same lines with lots of hands-on interaction. Finally, have a standard⁹ consulting offering to hold a customer's hand through the installation and operation of a LinuxONE mainframe. All of these should be offered to potential customers at as low a cost as possible.

⁸ In fairness, we should point out that IBM mentioned their academic initiative in this context. We salute the effort and its success but its impact is minimal for the short or intermediate term. The reader can decide. See <http://www-304.ibm.com/ibm/university/academic/pub/page/systemz>

⁹ It is entirely possible to get a customized offering for this today. We suggest a “standard” offering because a customized offering is not affordable for many of the target customers.



The Final Word

With all that we've said, we firmly believe that the LinuxONE offering marks a major crossroads for IBM's mainframe group. It is a very convincing demonstration of their commitment and adjustment to marketplace changes. It provides a solid value proposition that will help drive market penetration along with significant growth. By contributing significant technology to the open community and committing to providing more, they materially enhance the attractiveness of Linux in the enterprise.

With the LinuxONE announcement, IBM has made themselves into an attractive alternative for a much broader spectrum of potential Linux customers, beginning at the high end of the market but extending more deeply than ever before to entry level users. From incredibly cost efficient computing to unmatched reliability for powerful processing, IBM has much to offer of very real value to the entire Linux marketplace.

If you're in Linux today and haven't looked at what IBM has to offer, you're doing yourself and your enterprise a disservice. Talk to them today!



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