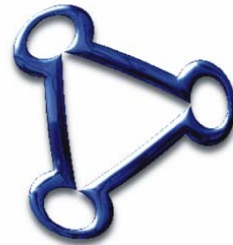


Usage and Plans for Mainframe Linux

Acceptance and Challenges

A TIP Research Paper

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This TIP (TheInfoPro) Research Paper delivers findings on a study about Mainframe Linux. It is based on data from 100 web-based survey completions plus additional one-on-one live interviews with organizations that had sales of \$2 billion or more.

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Executive Summary

TheInfoPro (TIP) conducted a research study with IT professionals at large enterprises to understand the factors of use as well as the trends in their IBM Mainframe Linux environments. All participants were existing users or had plans to have Mainframe Linux in production within 18 months. The study focused on enterprises with sales of \$2 billion or more; about half of them had sales volumes between \$5 billion and \$10 billion, with the remaining divided nearly equally as sales of greater than \$10 billion and sales of between \$2 billion and \$5 billion.

The primary key questions and key findings from the study include the following:

QUESTION: Why is Mainframe Linux being selected and used?

KEY FINDING: The reasons most often chosen were 1) taking advantage of available mainframe capacity (central processor and/or IFL), and 2) seeing Mainframe Linux as a way to save costs versus other platform use.

QUESTION: Is use of Mainframe Linux growing or contracting for existing customers?

KEY FINDING: Seventy percent (70%) of participants expected during the next two years to have their Mainframe Linux spending be greater than or equal to their current spending. Half of participants said they expected to spend more two years from now than they spend today.

KEY FINDING: Participants' estimates for Integrated Facility for Linux (IFL) capacity growth within the next two years showed expectations of strong increases; 67% of estimates were in the range of up to 40% annual growth.

QUESTION: What do users consider to be advantages and challenges of the Mainframe Linux environment?

KEY FINDING: None of the seven factors offered to participants for rating as a challenge and an advantage was rated more a challenge than an advantage. Four of the seven factors (software for backup, restore and disaster recovery; scale to many virtual machines; available applications; software for security) compared as "strongly advantageous".

Study Demographics

Study Objective

TheInfoPro (TIP) conducted a research study with IT professionals at large enterprises to understand the factors of use as well as the trends in IBM Mainframe Linux environments.

Study Approach

- 100 survey interviews were completed using a web-based technique and primarily multiple-choice questionnaire. The total sample encompassed interviews from each of three geographic markets: U.S./North America, Europe (U.K., France, Germany), and Australia, with U.S./Canada the dominant component. Additionally, TIP spoke directly with organizations in North America to gain qualitative and anecdotal comment in support of study analysis.

- The question set was designed to be an approximately 10- to 15-minute online interview with 30 questions.

- Organizations with sales of \$2 billion and greater were included.

Study Timeframe

- March-April 2009

Chart 1: Job Titles of Interviewees

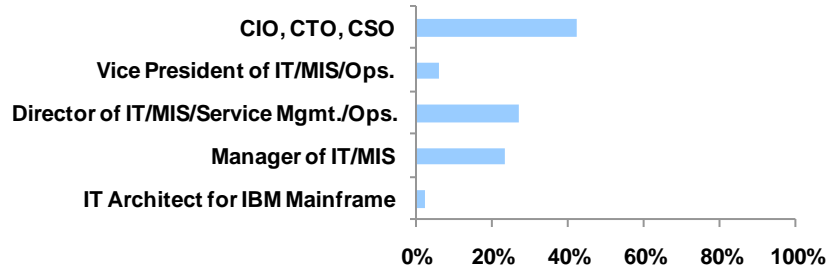


Chart 2: Sales Revenue of Participating Companies

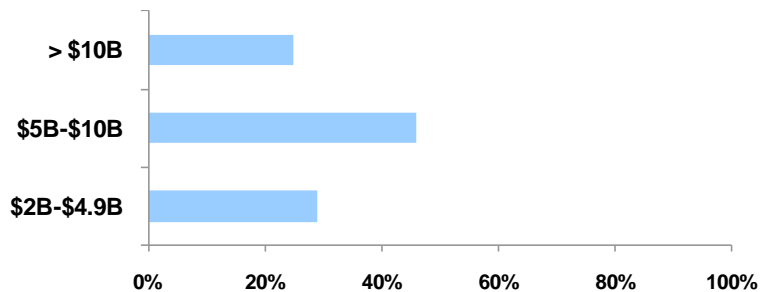
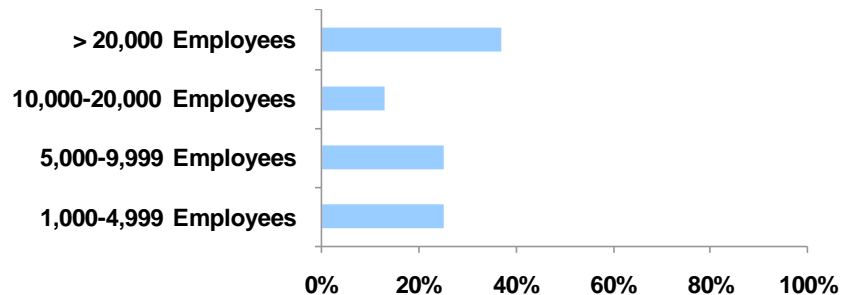


Chart 3: Number of Employees in Participating Companies



Why is Mainframe Linux being selected and used?

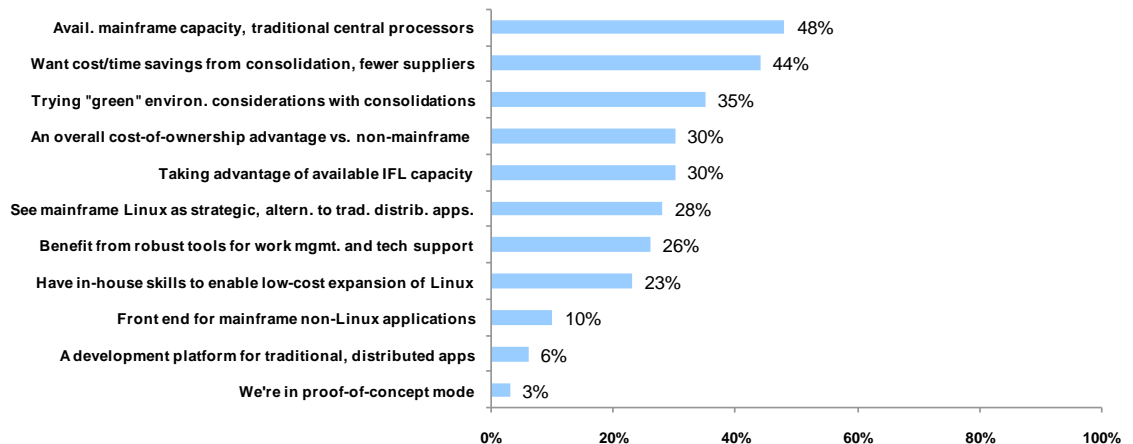
Question: Which of the following characterizes your adoption and continuing use of Mainframe Linux (select up to three factors)?

Participants, all of them current users or those expected to be users within 18 months, were given 11 possibilities to choose from as motivations for their use of Mainframe Linux. The choices ranged from simply wanting to take advantage of available mainframe central processing capacity or IFL capacity to wanting to use the mainframe as a strategic platform for all variations of applications, including those from the Unix/Linux environment typically referred to as distributed platform processing.

The reasons most often chosen were: 1) taking advantage of available mainframe capacity (central processor and/or IFL), which was two choices and cited by 48% and 30%, respectively, and 2) seeing Mainframe Linux as a way to save costs versus other platform use, which also was two choices and was cited by 44% and 30%, respectively.

IBM has tried, apparently with some success, to not only keep the mainframe relevant but to encourage new uses by offering Mainframe Linux. The IFL technology's attractive pricing, and "free" IFL capacity increases with central processor upgrades, are prime examples of IBM's tactics.

Chart 4: Reasons for Initial and Ongoing Use of Mainframe Linux



Reasons for using Mainframe Linux that got the smallest number of selections were: use as a development platform and use as a front end for traditional mainframe applications. As evidenced by this and live discussions with participants, efforts are apparently not extensive nor are they broadly based to more tightly couple distributed applications with Mainframe Linux or other traditional mainframe applications.

From live discussions with study participants, we know situations exist that have complete separation of Linux applications on the Mainframe from applications on distributed platforms, and seldom did they have processing and/or development working in concert between mainframe and distributed environments.

Is use of Mainframe Linux growing or contracting for existing customers?

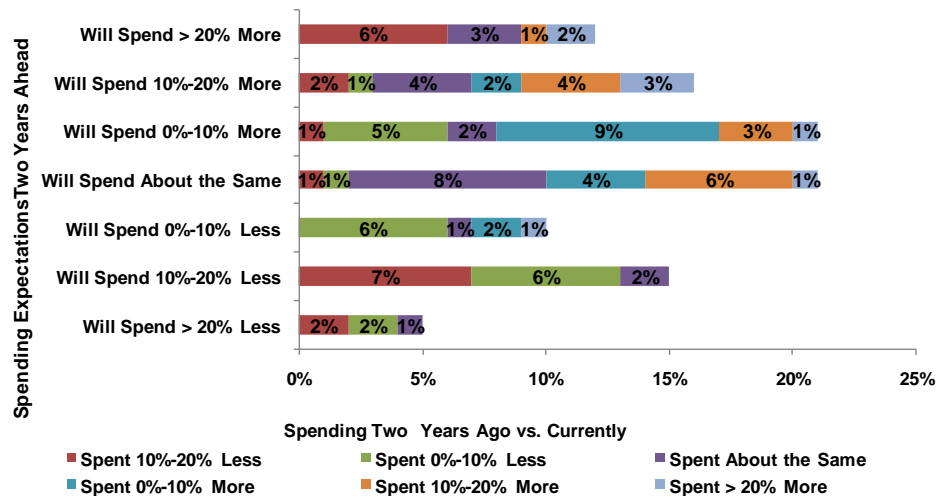
Question: Considering your environment, which of the following [% ranges] best represents your company's total spending allocation now for Linux-related hardware and software compared to two years ago? Two years from now?

Chart 5 shows that 70% of participants expected during the next two years to have Mainframe Linux spending at a level greater than or equal to their current spending level. Half of participants said they expected to be spending more two years from now than they spend today (top three bars); many of those said they had increased spending in the past two years. An added 21% expected to spend about the same two years from now, with many of them saying they were spending somewhat less than two years ago. Thirty percent (30%) said they will spend less two years from now, with a majority of that 30% saying that two years ago they had spent less.

Chart 5: Spending Trends for Mainframe Linux

The graphic shows how each participant responded to two questions: Mainframe Linux expected spending two years ahead vs. currently, and then spending two years ago vs. currently.

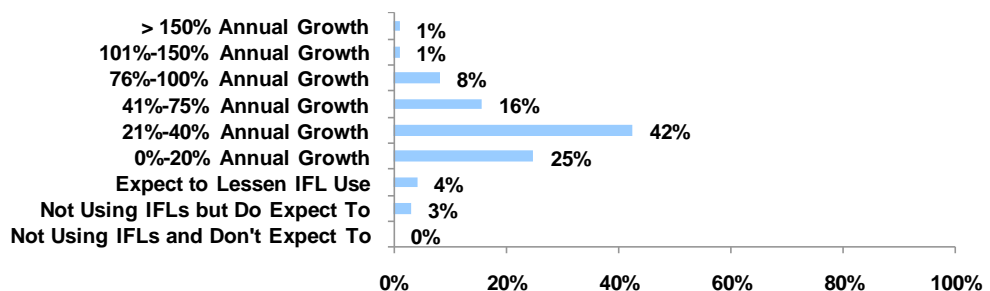
The total length of each bar shows expectations of participants for spending change two years ahead. The areas within each bar show what those participants said they spent two years ago vs. currently.



Question: What rate of IFL capacity growth do you expect to have during the next two years on an annual basis?

Estimates by participants for IFL capacity growth within two years showed an expectation of a strong increase. The range of the expected growth rate was primarily up to 40% (67% of respondents). At the high end, 24% expected growth of between 41% and 100%.

Chart 6: IFL Growth Rate for the Next Two Years



What do users consider to be advantages and challenges of the Mainframe Linux environment?

Question: On a scale of 1 to 4, which of the following do you believe are the significant advantages and significant challenges of Mainframe Linux over non-mainframe platforms for your organization?

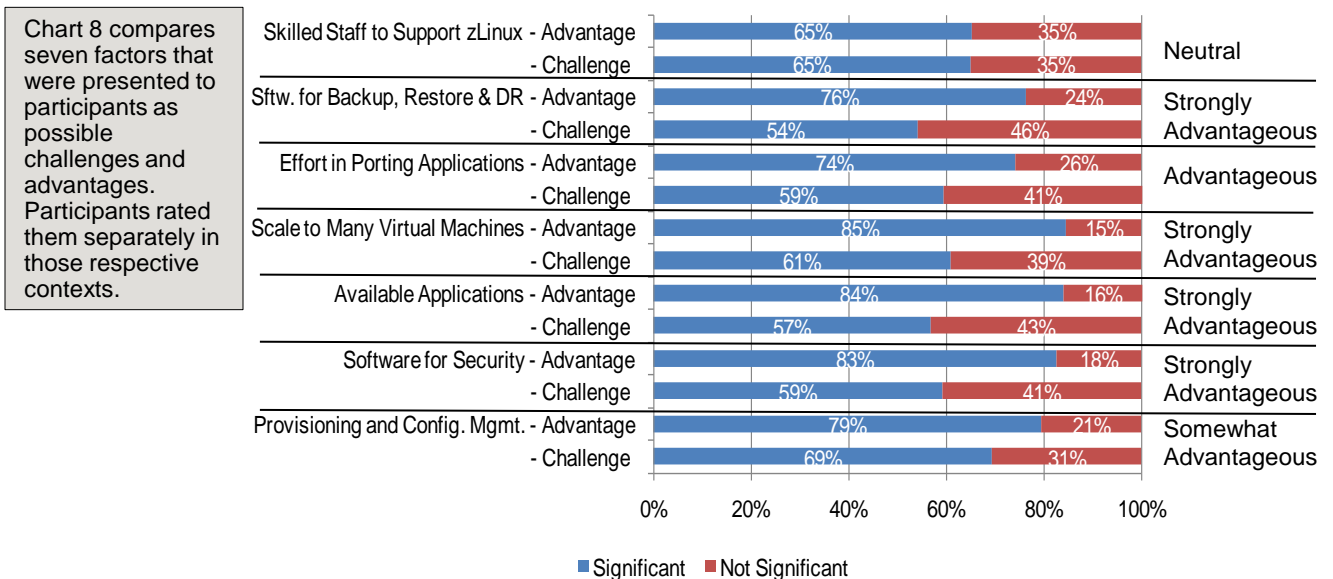
Participants were shown seven factors to rate as challenges in a Mainframe Linux environment and the same seven factors to rate as advantages. The margin notes to the right of Chart 8 provide a comment on relative results when participants' sense of challenge vs. advantage is compared. What is a challenge for one can be an advantage for another.

A significant finding is that none of the factors was considered more a challenge than an advantage, although all had measurable numbers of participant opinions for each.

Four of the seven factors in Chart 8 compared as strongly advantageous: software for backup and disaster recovery, scaling virtual machines, security software, and available applications. The factor with the strongest overall rating as an advantage was the ability of Mainframe Linux to scale to many virtual machines, reflecting the actual and potential capacity of a mainframe environment. Rated strongest as a challenge was provisioning and configuration management, and ironically, this factor was also rated strongly as an advantage.

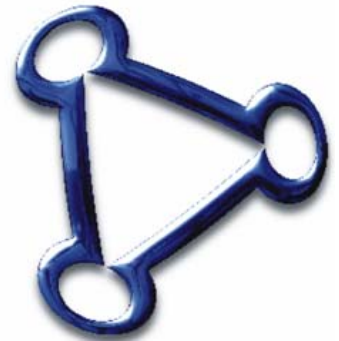
One factor, skilled staff availability, compared as neutral, with equal numbers of participants rating this a challenge as those who rated it an advantage – 65%. It's very likely this similarity of results is reflecting "local" considerations, meaning factors such as availability of existing staff from other non-mainframe Linux platforms or availability of traditional mainframe staff to be re-skilled for Mainframe Linux support roles.

Chart 8: Comparing Advantage and Challenge Ratings for Mainframe Linux



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