

Information Technology Intelligence Consulting

ITIC

ITIC 2025 Global Server Hardware, Server OS Reliability Results

Laura DiDio, ITIC Principal
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Overview: Survey Focus and Methodology

- ITIC's Global Server Hardware, Server OS Reliability survey polled **2,000** global businesses from February through December 2025.
- Web-based poll: multiple choice questions + Essay questions supplemented by two dozen customer interviews.
- **ITIC's 2025 Server Hardware, Server OS Reliability survey Update focus:**
 - The impact of data breaches and security hacks (e.g. Ransomware, phishing scams, CEO fraud, targeted cyber attacks by hacking groups/collective etc.) on reliability and availability.
 - The potential impact of AI and generative AI deployments on server reliability
 - Server and OS reliability/uptime by vendor platform.
 - Comparison of the reliability/uptime and availability of 18 server hardware/server OS platforms
 - Comparison of per server/per minute of **unplanned and planned** downtime costs of over one dozen server vendors.
 - Hourly Cost of Downtime and Hourly Cost of Downtime of the top 10 vertical market segments.
 - Enterprise Minimum reliability requirements.
 - Downtime caused by external security/data breaches by vendor platforms.
- Independent survey: **No Vendor Sponsorship.**
- ITIC analysts conducted two dozen customer interviews to provide context and validation.
- Approximately 60% of respondents hailed from North America; 40% were international customers.
- All market sectors represented: SMBs = 23%; SMEs = 28% and Enterprises = 49% of respondents.
- Survey responses were culled from 40 vertical markets.
- ITIC employed security & authentication to prevent tampering.

Survey Highlights

- **IBM Z and IBM Power Systems delivered the highest reliability for the 16th consecutive year along with the LinuxONE** over the last seven years (since its 2015 introduction).
- **The IBM Z (z13, z14, z15, z16) as well as the IBM LinuxONE 4 and latest LinuxONE Emperor 5** achieved an average of “nine nines” of unplanned per server/per minute monthly downtime. This totals just **315 milliseconds** of unplanned per server/per minute **annually**.
- The newest **IBM z17 and the LinuxONE 4 and LinuxONE Emperor 5** had “nine nines” or **31.56 milliseconds of unplanned per server yearly downtime**. **IBM Power8 and Power9 servers** achieved an average of “seven nines” reliability which equals **3.15 seconds of** unplanned annual per server downtime due to server or components flaws. The **IBM Power10 and newest Power11** scored “eight nines” of reliability or **315 milliseconds** of unplanned per server annual downtime.
- The **Lenovo ThinkSystem servers** achieved the highest reliability for the **12th straight year** among all x86 servers. Lenovo ThinkSystem servers had “seven and eight nines” of uptime or **315 milliseconds** of unplanned per server yearly downtime.
- **IBM and Lenovo servers** remain over **40x more reliable** and up to **60x** more cost effective than less reliable rivals.
- **Unbranded White box servers** are the least reliable with 60 minutes of unplanned per server monthly downtime.
- **IBM Z and IBM Power Systems and Lenovo ThinkSystem servers deliver the BEST ECONOMIES of SCALE:** most economical Total Cost of Ownership and immediate Return on Investment (ROI)

2024 -2025 Reliability Trends

- **Top Causes of Unplanned Downtime: security/data breaches** remain the number one source of unplanned server outages, according to **86%** of respondents followed by **75%** who cited Human error and **64%** who said management issues relating to remote/hybrid work environments precipitated unplanned server downtime
- **A 94% Majority of Enterprises now require a minimum “Four Nines” of Uptime** for mission critical hardware, operating systems & main line of business applications; this is an increase of 10 percentage points from ITIC’s 2017 – 2018 Reliability poll.
- But, **in 2024 -2025, a 51% majority** of respondents say their firms require at least “**five nines**” of uptime.
- **Cost of Unplanned Hourly Downtime Increases with a 93% majority** of firms saying hourly downtime costs exceed \$300K; **35%** of respondents estimate one hour of unplanned downtime costs their companies up to \$400K.
- **Increase in Server Workloads** causes reliability declines in 78% of servers >4 years old that haven’t been retrofitted or upgraded to accommodate increased workloads.
- **Planned Downtime Increases** as 72% of firms now spend on average from two to eight hours on planned downtime. This is mainly to apply security patches and fixes; retrofitting the hardware and provisioning new applications. However, companies that deploy High Availability (HA) solutions incur virtually **no additional costs** related to planned downtime.

Reliability Results

Enterprise minimum server hardware, server OS requirements increase:

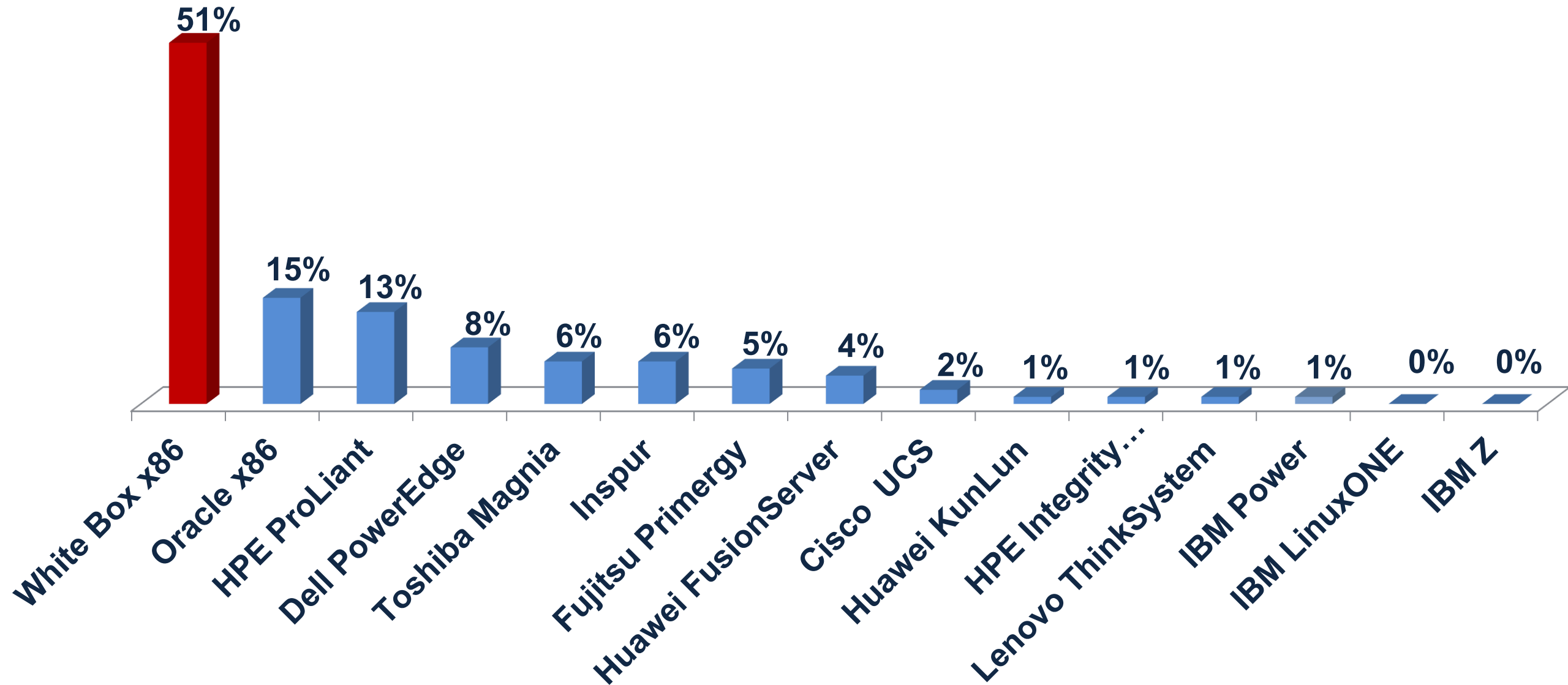
>90% of companies require “four nines” of uptime.

55% of firms strive for a minimum of “five nines” of reliability or just 5.26 minutes of unplanned per server annual downtime.

Monetary Cost of Unplanned Hourly Downtime Per Minute, Per Server

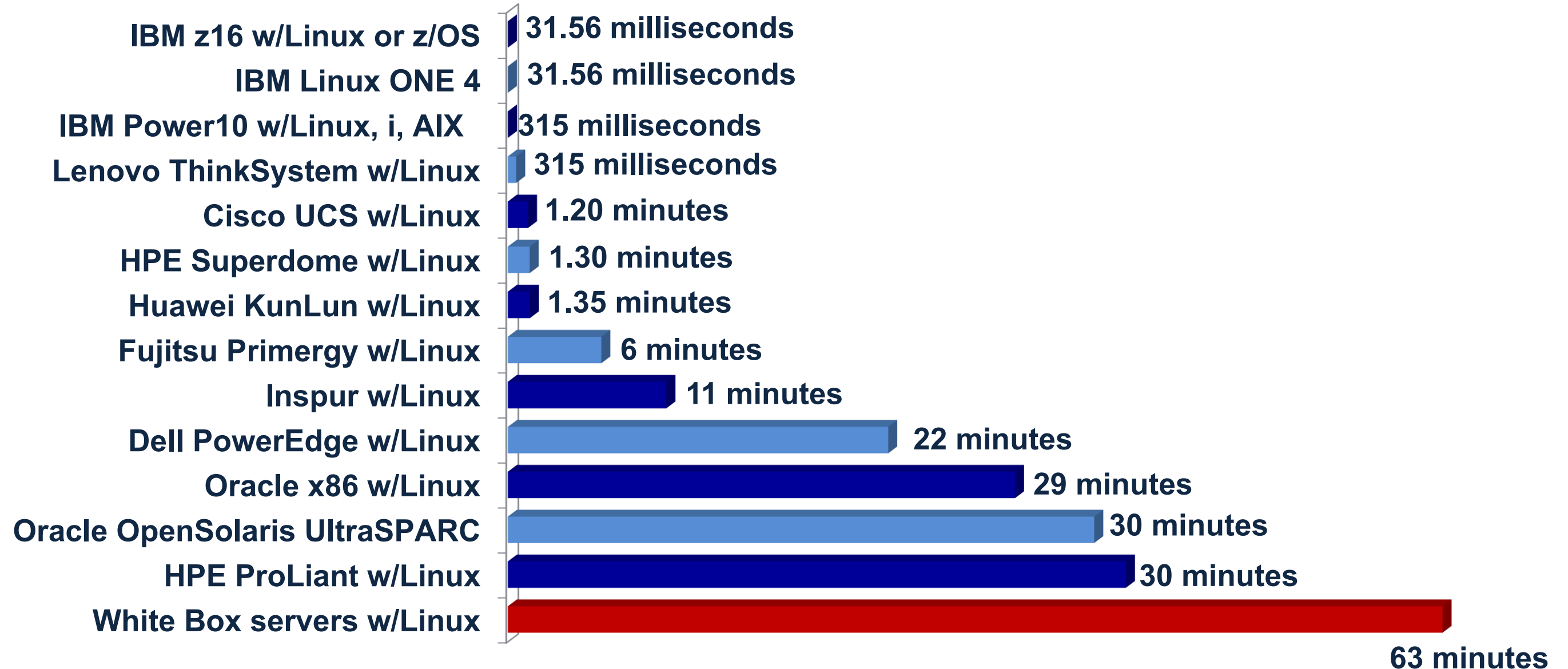
Hourly Cost of Downtime	Per Minute, Per 1 Server	Per Minute, 10 Servers	Per Minute, 100 Servers	Per Minute, 1,000 Servers
\$10,000	\$167	\$1,670	\$16,700	\$167,000
\$100,000	\$1,670	\$16,700	\$167,000	\$1,667,000
\$300,000	\$4,998	\$49,980	\$499,800	\$4,999,800
\$400,000	\$6,670	\$66,670	\$667,000	\$6,667,000
\$500,000	\$8,333	\$83,330	\$833,300	\$8,333,300
\$1,000,000	\$16,700	\$167,000	\$1,670,000	\$16,670,000
\$2,000,000	\$33,333	\$333,330	\$3,333,300	\$33,333,000
\$3,000,000	\$49,998	\$499,980	\$4,999,800	\$49,998,000
\$5,000,000	\$83,333	\$833,330	\$8,333,300	\$83,333,000
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Unplanned Annual Server Downtime of 4 Hours or more by Vendor Hardware in 2025



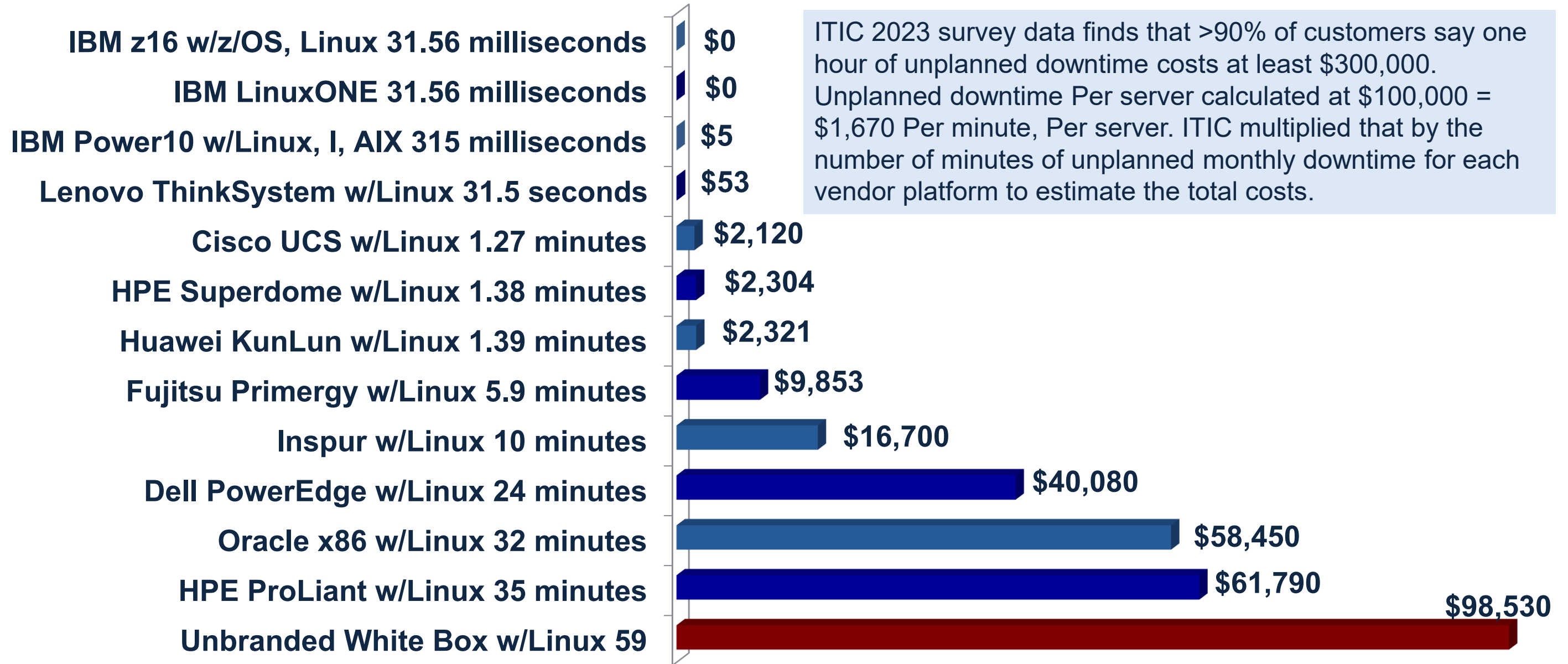
Unplanned Annual Downtime by Server Hardware Platform in Minutes Per Server in 2025

Unplanned Annual Downtime Per server/Per minute by vendor



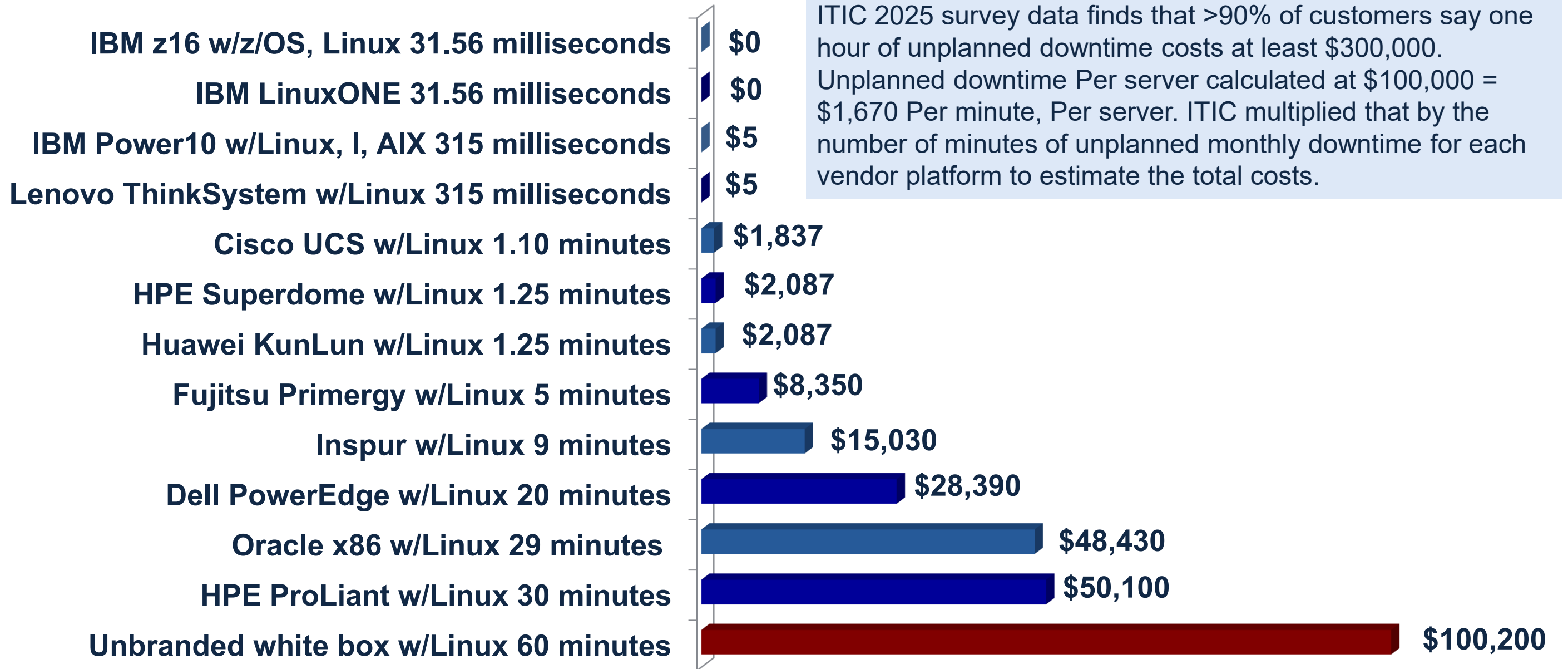
Cost of Unplanned Annual Downtime Per Server/Per minute, Assuming Cost of \$100K Hourly in 2023

ITIC 2023 survey data finds that >90% of customers say one hour of unplanned downtime costs at least \$300,000. Unplanned downtime Per server calculated at \$100,000 = \$1,670 Per minute, Per server. ITIC multiplied that by the number of minutes of unplanned monthly downtime for each vendor platform to estimate the total costs.



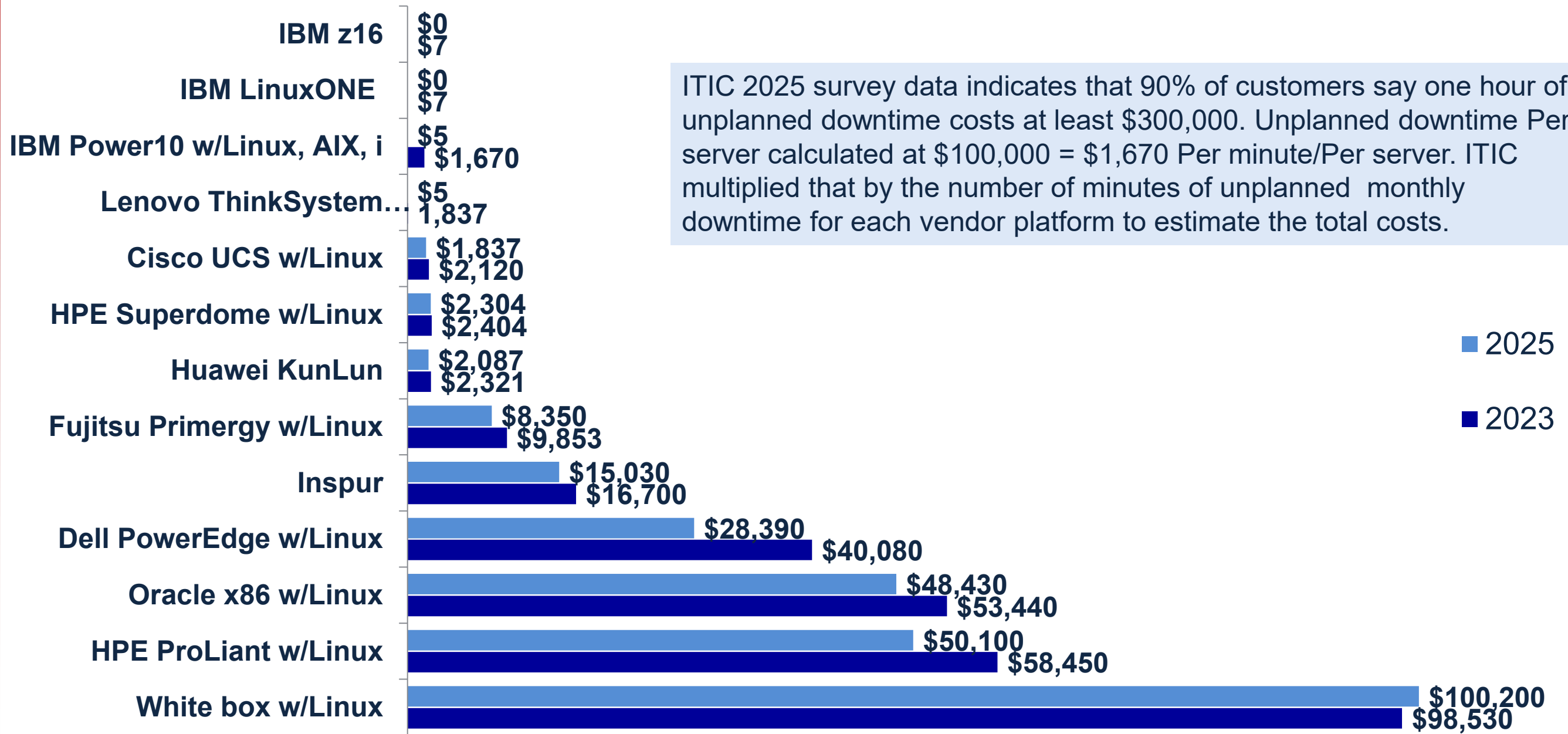
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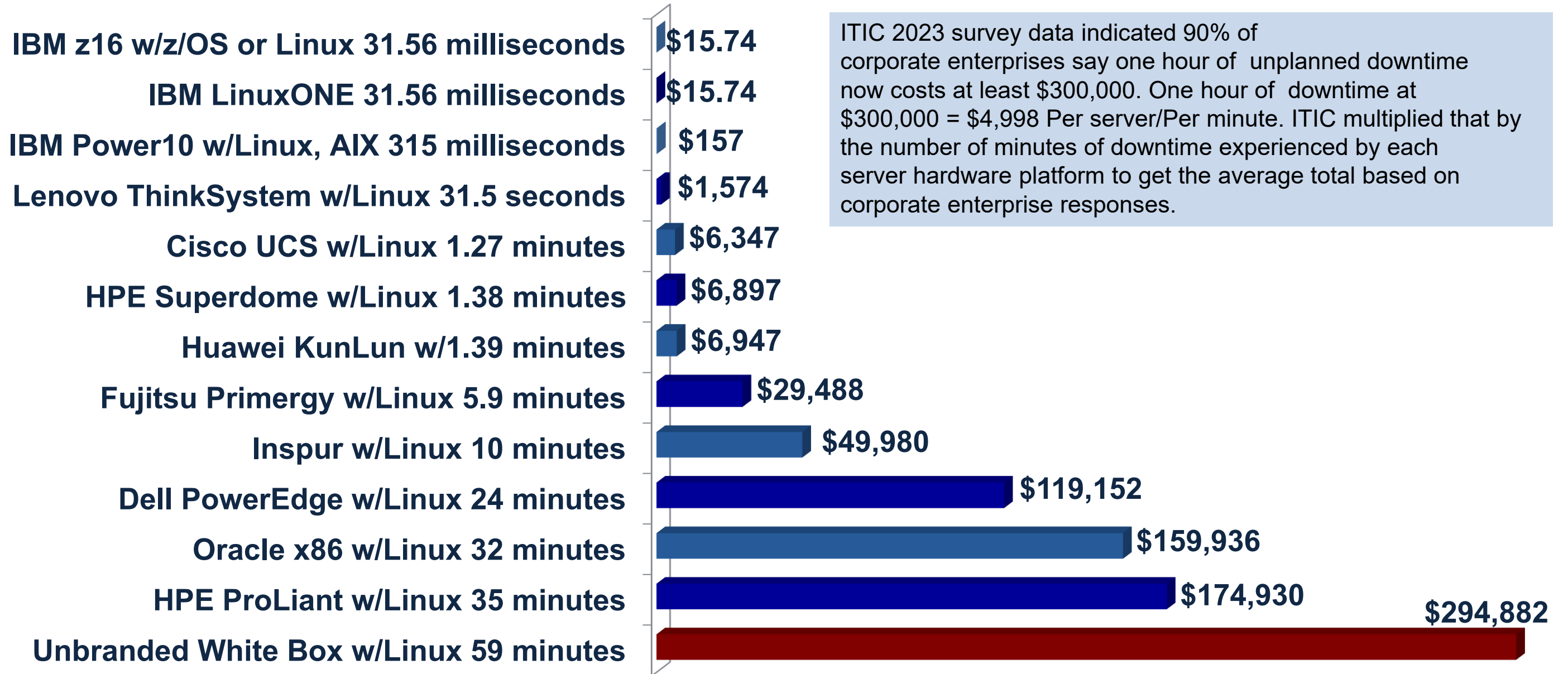


Cost of Unplanned Annual Downtime Per Server, Assuming Cost of \$100K Per Minute 2023 vs. 2025

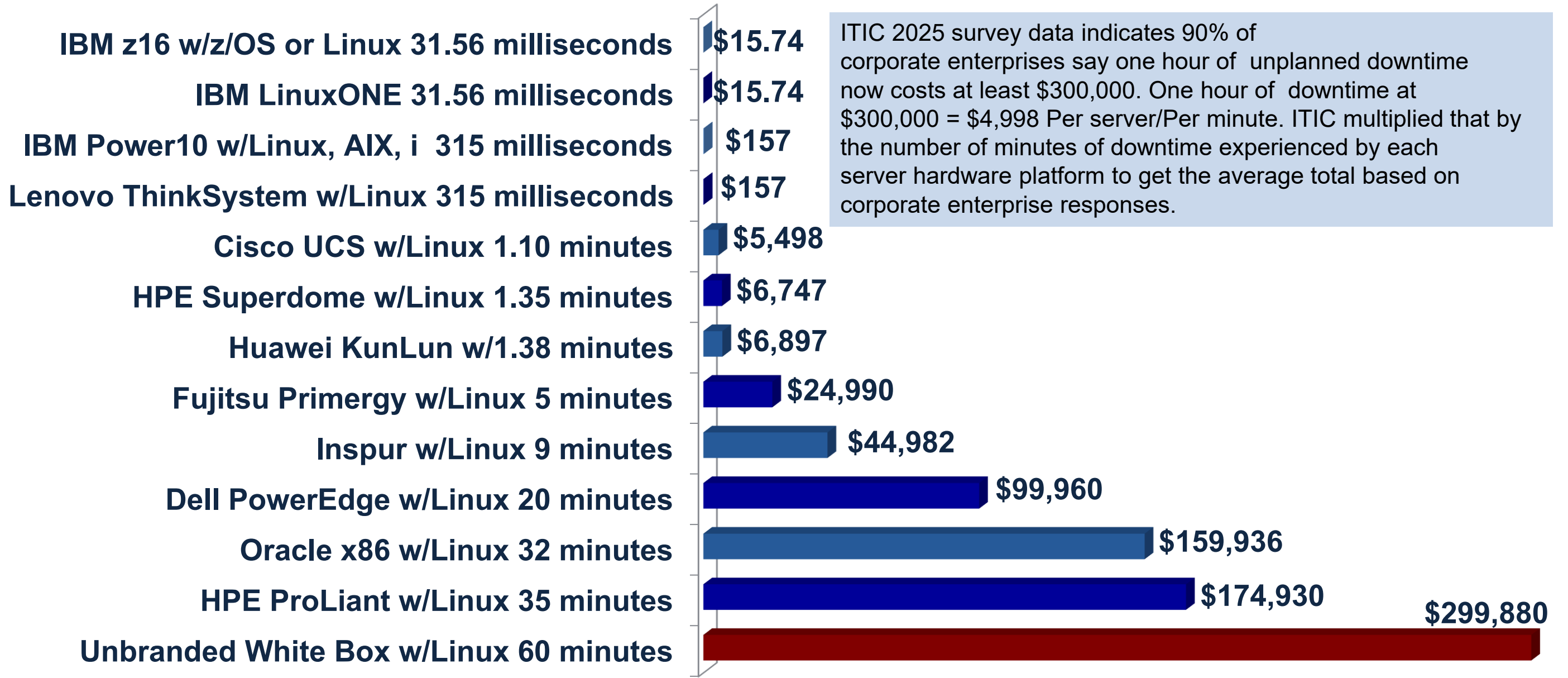
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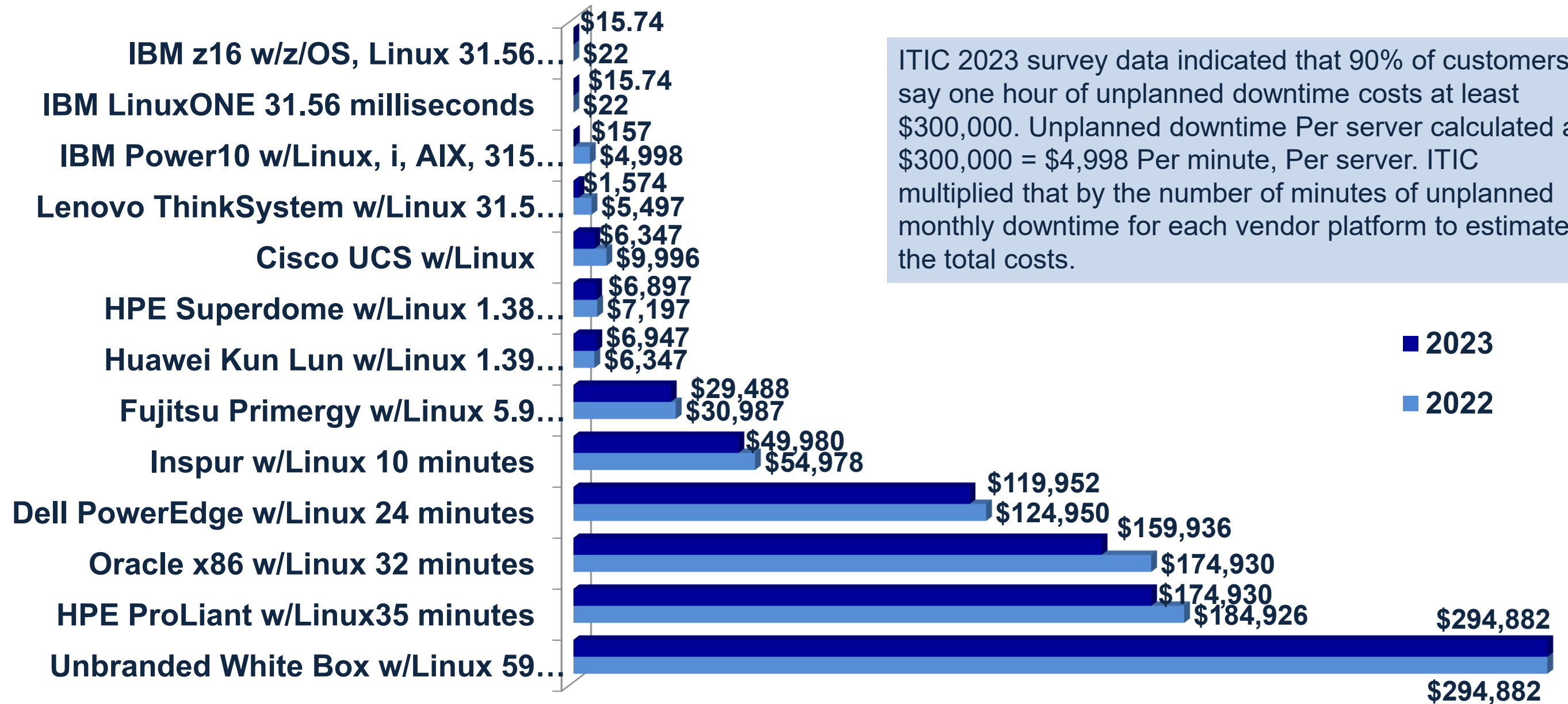
Cost of Unplanned Annual Downtime Per Server, Per Minute Assuming Cost of \$300K Per Hour in 2023



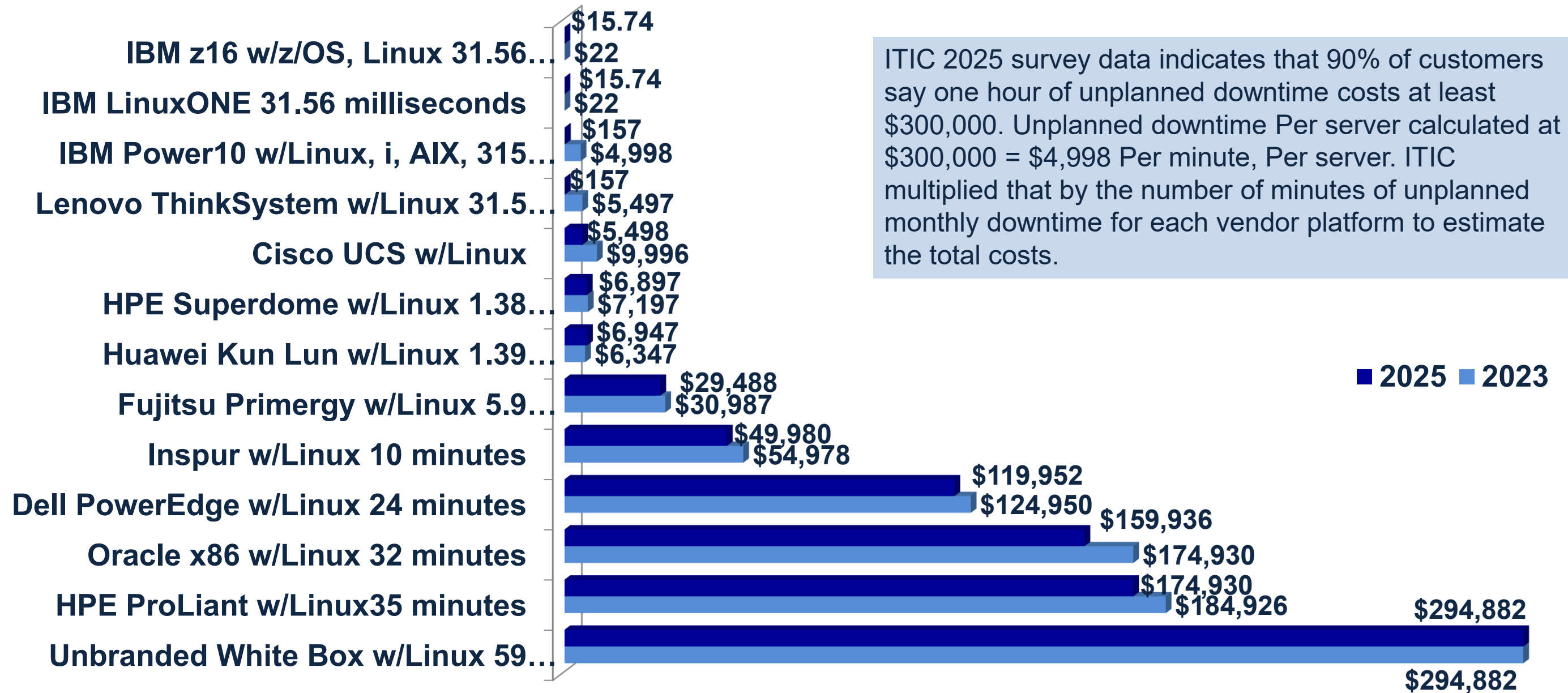
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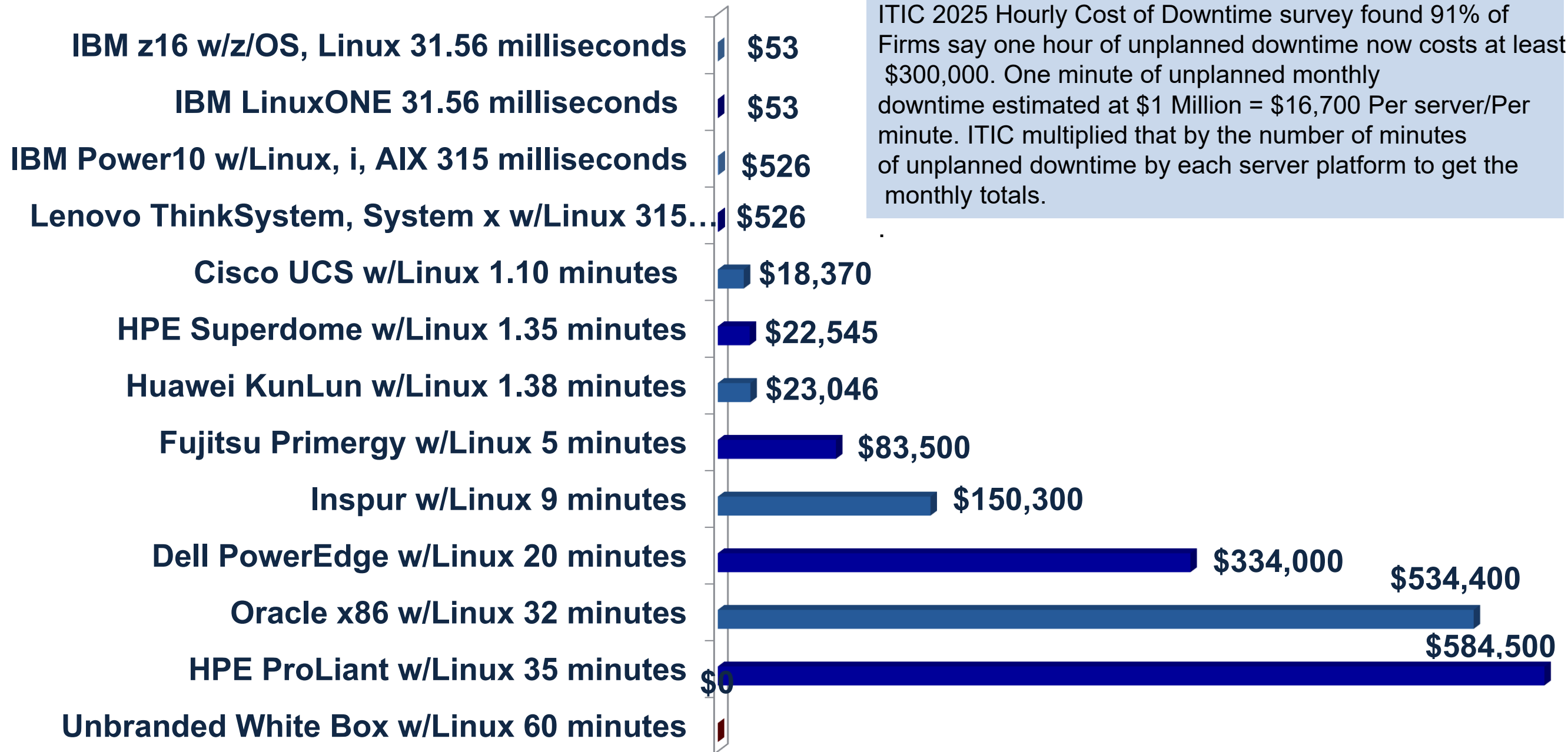
Cost of Unplanned Annual Downtime Per Server Assuming Cost of \$300K Per Hour 2022 vs. 2023



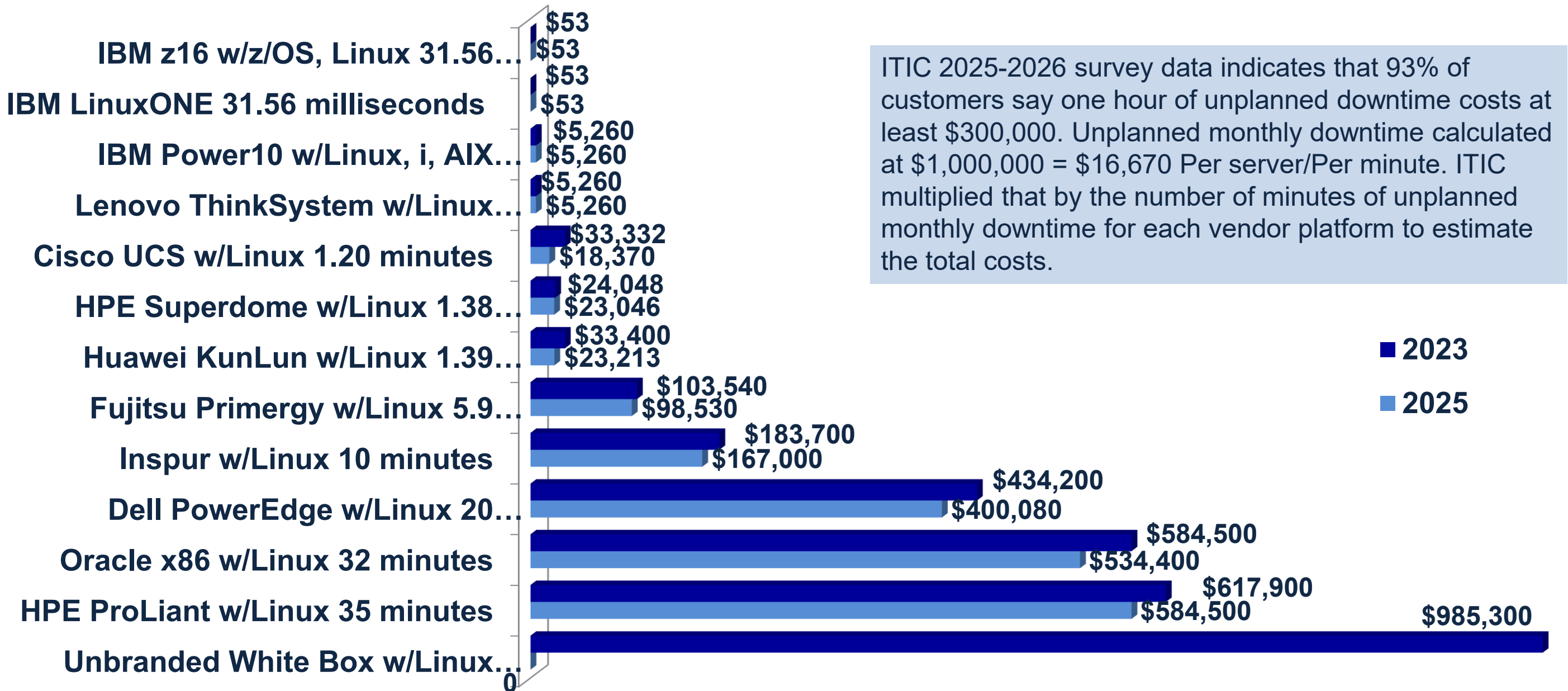
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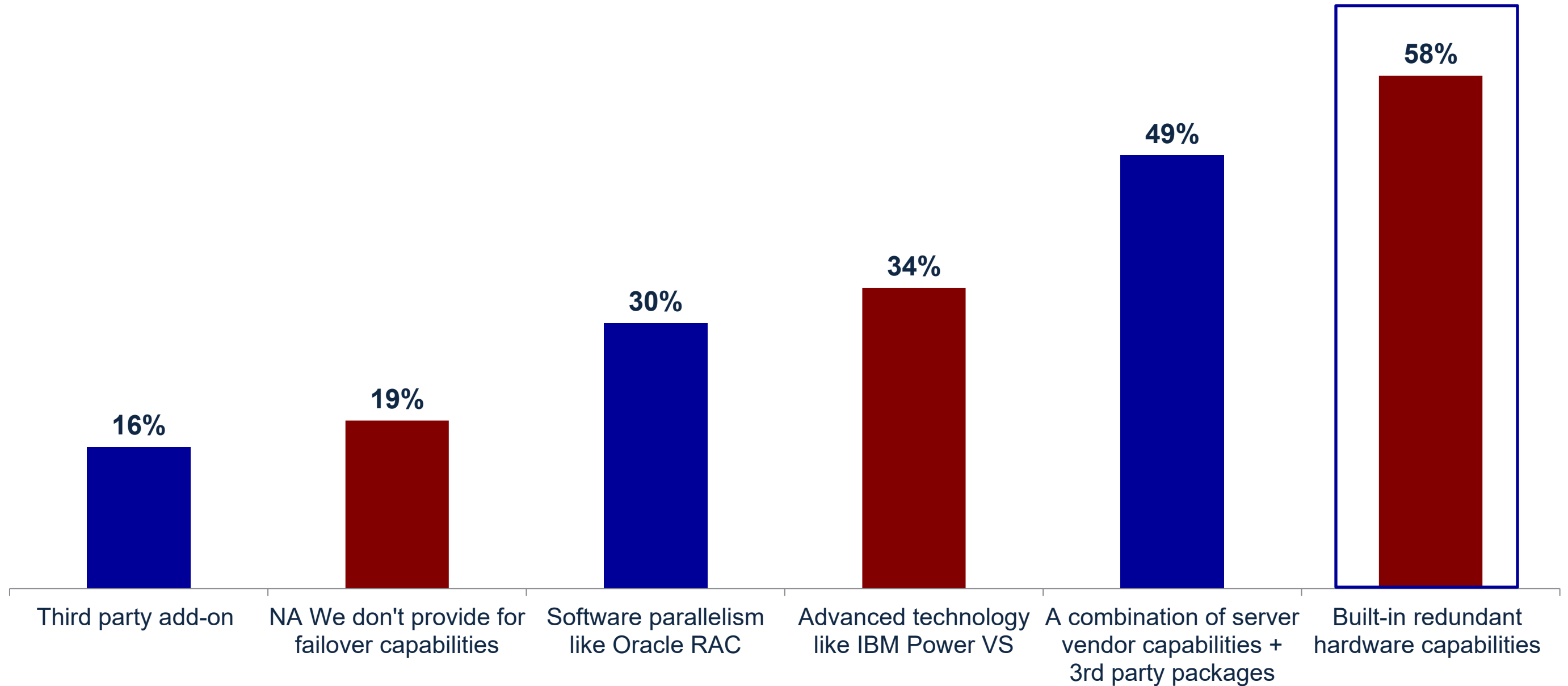
Cost of Unplanned Annual Downtime Per Server Assuming Cost of \$1 Million Per Hour in 2025



Cost of Unplanned Downtime Per Server, Assuming Cost of \$1 Million 2023 vs. 2025



How does your firm provide for high availability/failover protection & redundancy? (2025) Select All that apply

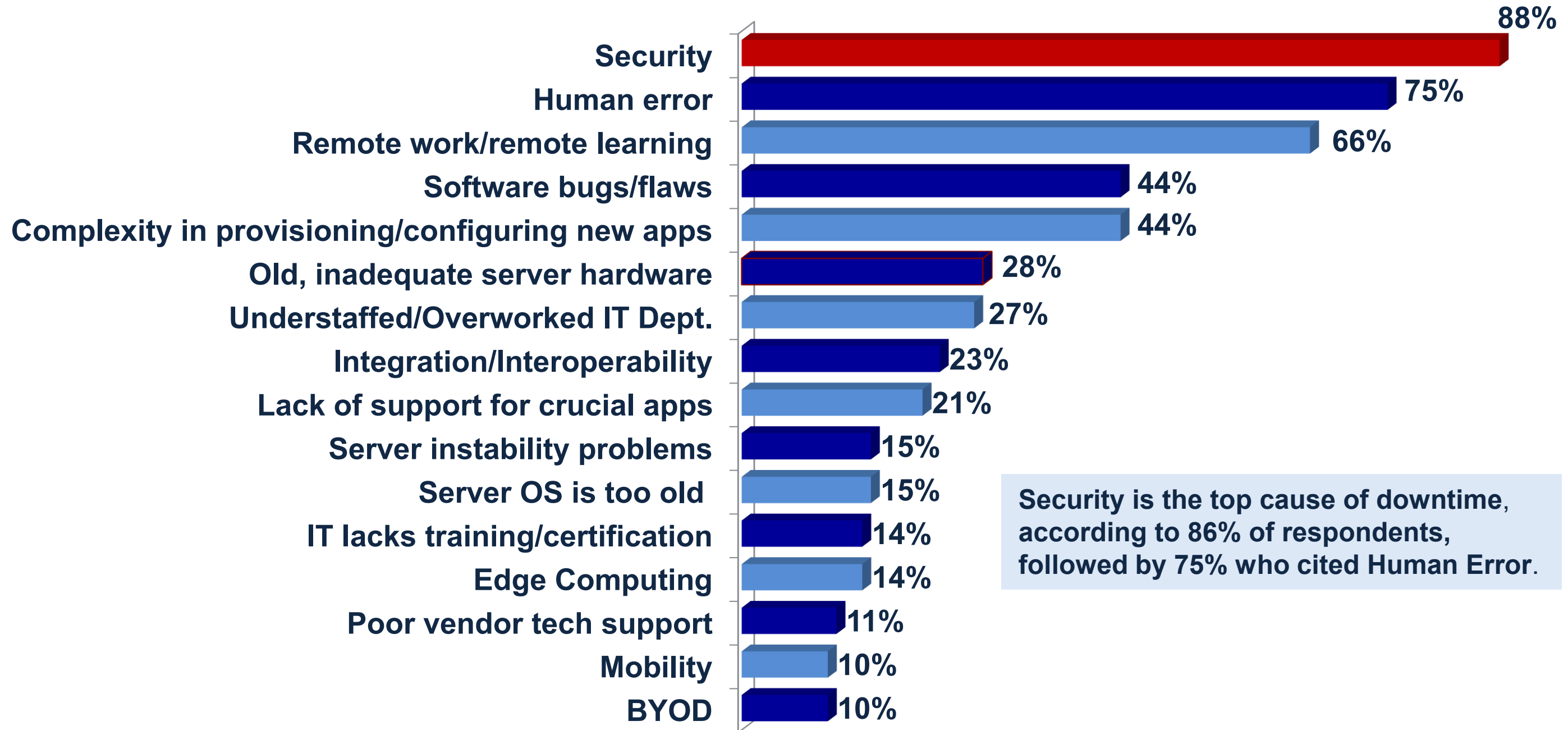


Unplanned Monetary Downtime Costs by Hardware Platform

Monetary Cost of Unplanned Hourly Downtime Per Minute, Per Server

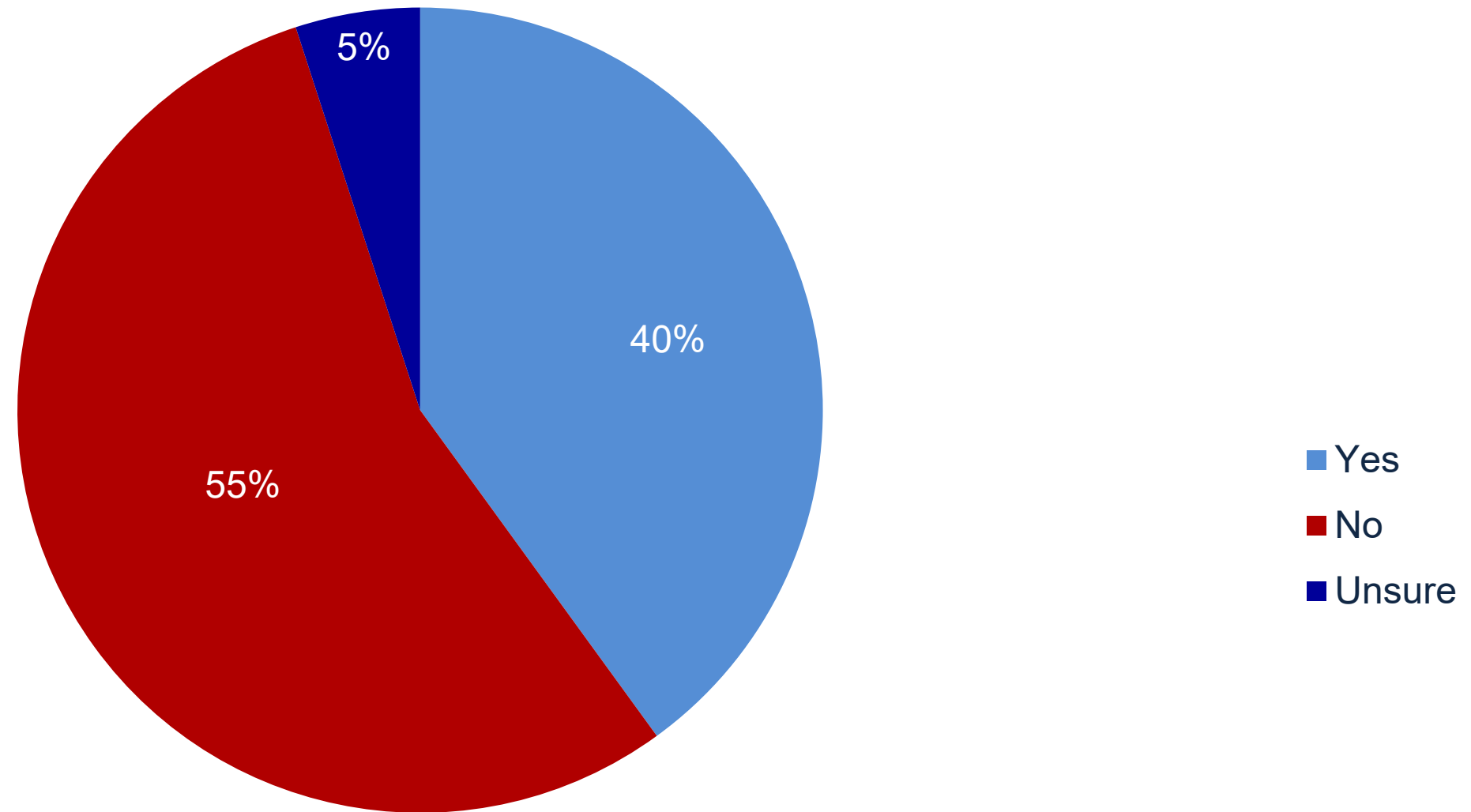
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What Issues Most Negatively Impact Reliability & Cause Downtime for Server Hardware, Server OS in 2025? (Select all that apply)



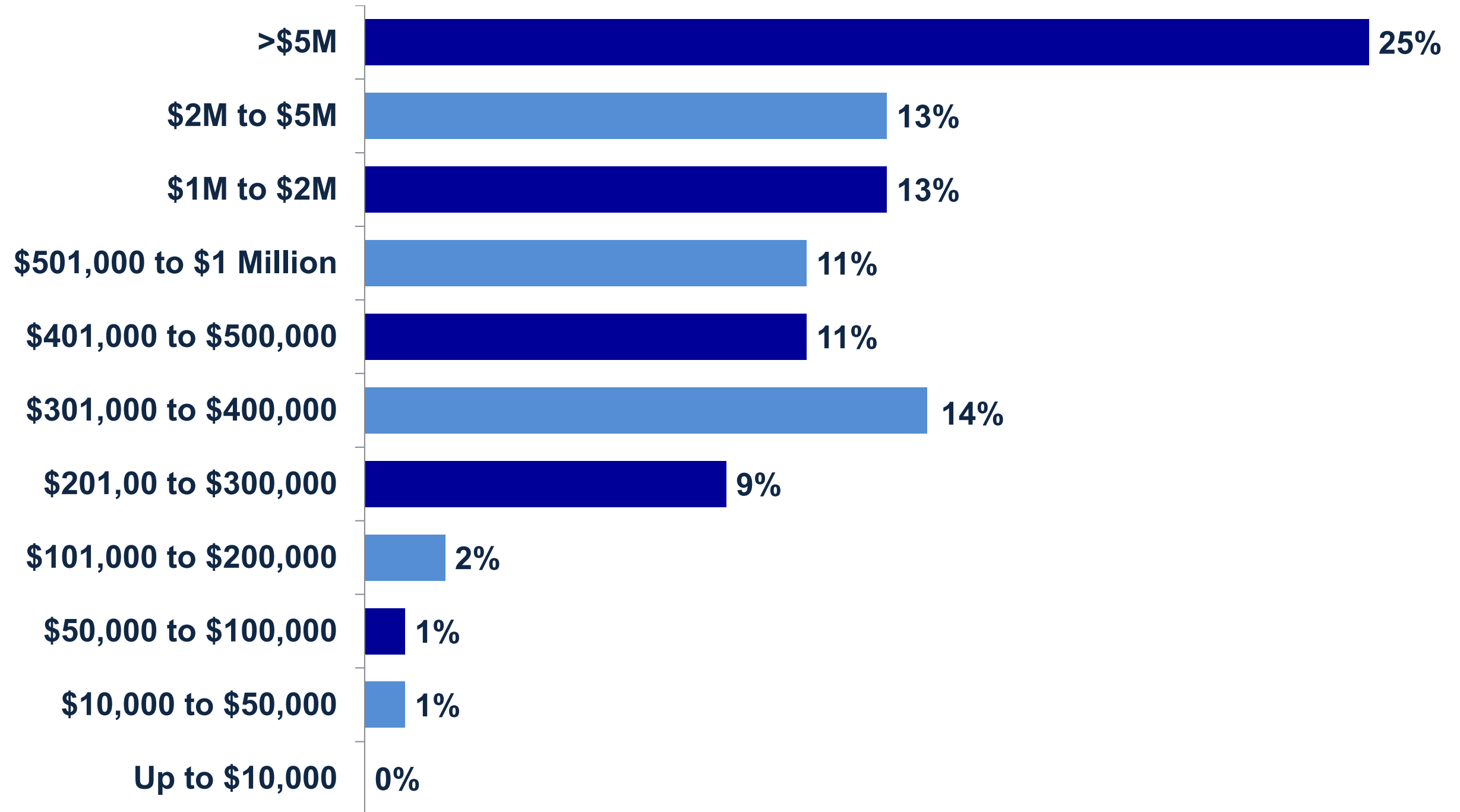
Cost of Downtime Increases

Has your firm calculated the cost of unplanned downtime for mission critical servers/business applications in 2025?



The percentage of enterprises unable to calculate unplanned downtime costs consistently outpaces those that can over the last 10 years. Of the 40% that responded "Yes" only about 40% - can make detailed unplanned downtime estimates. In actuality, only 20% of organizations, or 1-in-5, can accurately assess the hourly cost of downtime & its impact on productivity and the business' bottom line.

Ninety-three Percent of Firms Say Unplanned Hourly Downtime Costs Exceed \$300K in 2025



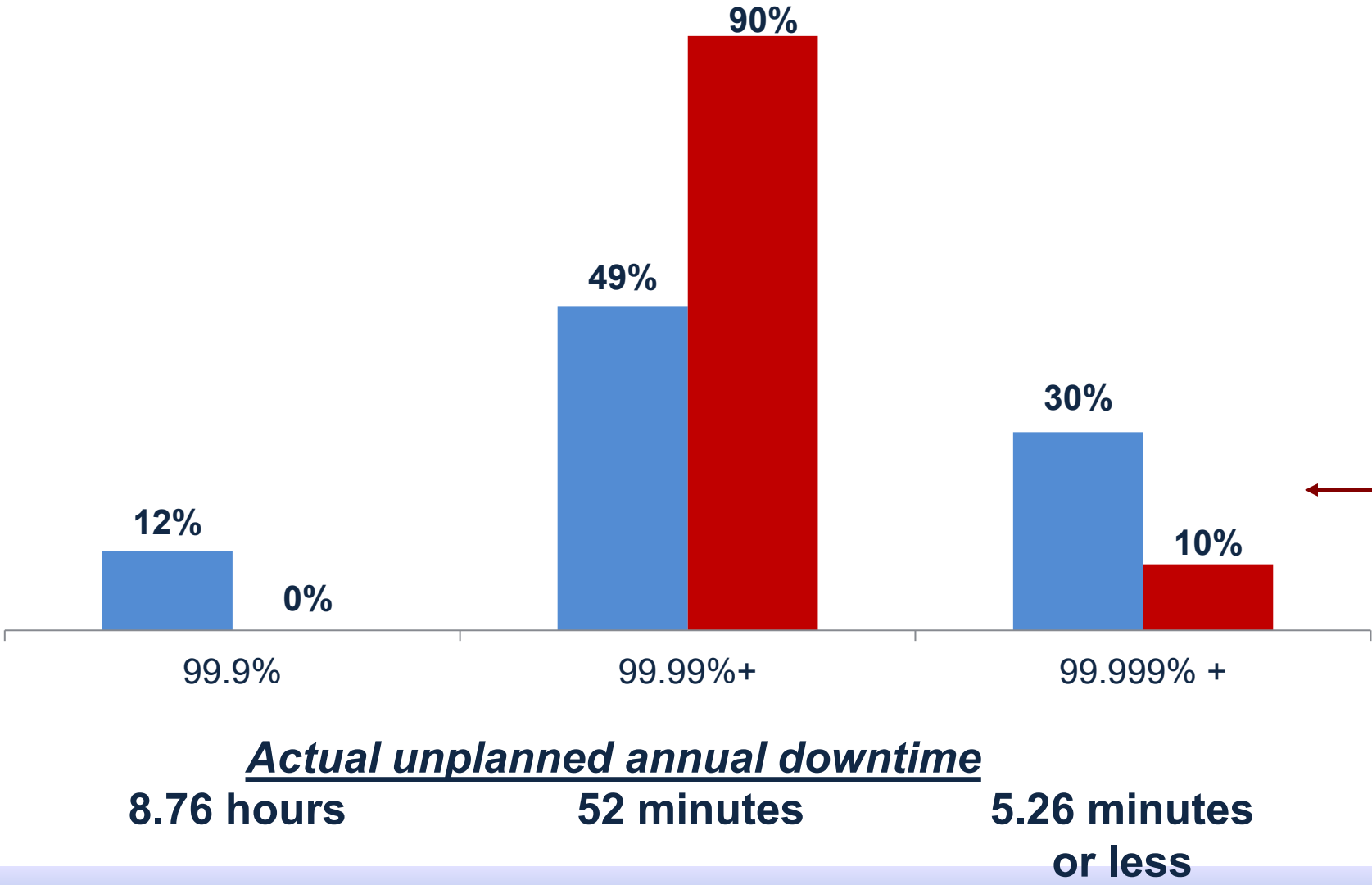
Average Hourly Downtime Costs Top 10 Verticals in 2024

Vertical Market Segment	Average Unplanned Hourly Per Server Downtime Cost
Banking/Finance	\$12.8 Million (US Dollars)
Government	\$9.5M
Education	\$6.4M
Food/Hotel/Hospitality	\$7.9M
Healthcare	\$9.2M
Manufacturing	\$9.1M
Media & Communications	\$9.0M
Retail	\$8.7M
Transportation	\$8.8M
Utilities	\$9.6M

Minimum Reliability Requirements

In 2025: Ninety percent of Enterprises Require a Minimum of 99.99%+ Reliability/Availability

In 2024, 90% of firms require four nines - 99.99%+ reliability for their mission critical systems. Overall, nearly 40% of firms now say they want five nines - 99.999%+ uptime and 11% strive for five, six, seven and eight nines



Demand for “five nines” or greater reliability continues to rise YoY. Also noteworthy: in 2014, some 12% of firms said 99.9% reliability was adequate and 7% of companies said they required only 99% uptime. In 2022 ALL survey respondents require at least 99.99% reliability & 38% want 99.999%.

Minimum Reliability Requirements in Top 10 Vertical Industries in 2024

Minimum Reliability	Banking/ Finance	Govt	Education	Food Hotel	Health	Manufacturing	Media	Retail	Transportation	Utilities
99%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
99.9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
99.99%	10%	36%	64%	68%	60%	63%	31%	67%	42%	47%
99.999%+	57%	54%	31%	25%	36%	34%	59%	30%	56%	45%
99.99999% +	29%	10%	5%	8%	4%	4%	10%	3%	2%	8%

A 90% majority of businesses of all sizes – from SMBs to the largest enterprises – now require a minimum of 99.99% reliability/uptime. This equals 52 minutes of *unplanned downtime*, or just 4.33 minutes per server every month. The requirements are even more stringent for corporations in the top vertical market segments which are highly regulated and bound by strict compliance laws.

Questions ?

Laura DiDio

Principal, ITIC

www.itic-corp.com

E-mail: ldidio@itic-corp.com

(508) 887-9814 Office

(508) 740-1513 Mobile

Zoom: Laura DiDio

LinkedIn: <https://www.linkedin.com/in/lauradidio/>

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