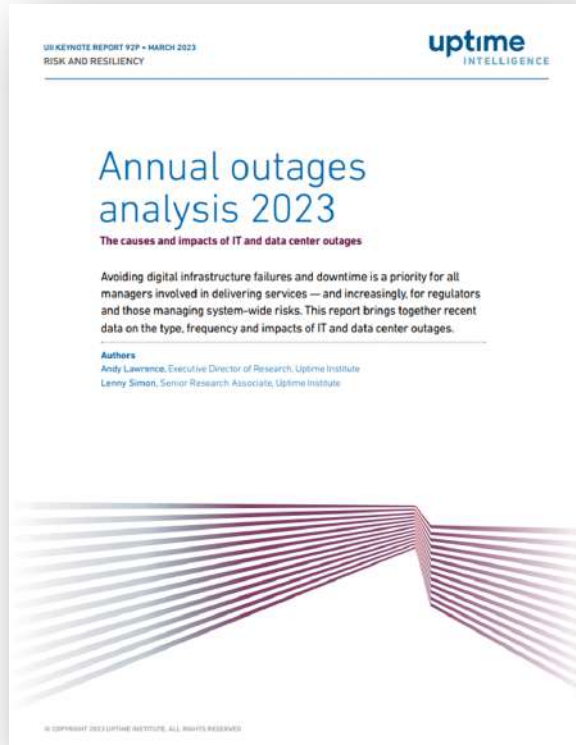


Annual Outage Analysis 2023

Ali Moinuddin

Chief Corporate Development Officer

About today's Session



Trends discussed on today's program:

- Tracking outages – the challenge
- Key findings
- Frequency and impact
- Causes
- Questions and discussion

Running time: 45- 60 mins

Ask questions any time

Report available:

- **Directly from Bright Talk, see attachments**
- <https://uptimeinstitute.com/resources/research-and-reports/annual-outage-analysis-2023>

Uptime Intelligence outage/incident tracking

	Accuracy	Methodology	Limitations
Public reports	Poor	News / social media	Mainly big outages and interruptions to consumer-facing services
		Outage trackers	May lack details
		Company statements	Sources may be untrusted or poorly informed
Uptime Institute surveys	Fair / good	Industry surveys by Uptime Institute	Answers may vary according to role and sample
			All responses anonymous
Uptime Abnormal Incident Report (AIRs) database	Good / very good	Detailed, accurate site / facility-level data shared under a non-disclosure agreement	Information primarily facility / site-based
			All data anonymous

2023 Analysis: Main information sources

Source	Data type/number
Uptime Intelligence Annual Global Data Center Survey	Survey 2022 -2Q/3Q 830 respondents (operators)
Uptime Intelligence Data Center Resiliency	Survey 1Q 2023 739 respondents
Uptime Intelligence Public Outage tracking	Media/tracker monitoring 2016-2022 600 outages tracked

Uptime Institute Outage Severity Rating

Outage severity rating

Category	Service outage	Impact of outage
1	Negligible	Recordable outage but little or no obvious impact on services.
2	Minimal	Services disrupted. Minimal effect on users / customers / reputation.
3	Significant	Customer/user service disruptions, mostly of limited scope, duration or effect. Minimal or no financial effect. Some reputational or compliance impact(s).
4	Serious	Disruption of service and/or operation. Ramifications include some financial losses, compliance breaches, reputational damage and possibly safety concerns. Customer losses possible.
5	Severe	Major and damaging disruption of services and / or operations with ramifications including large financial losses and possibly safety issues, compliance breaches, customer losses and reputational damage.

Outage Analysis 2023 – Key Findings

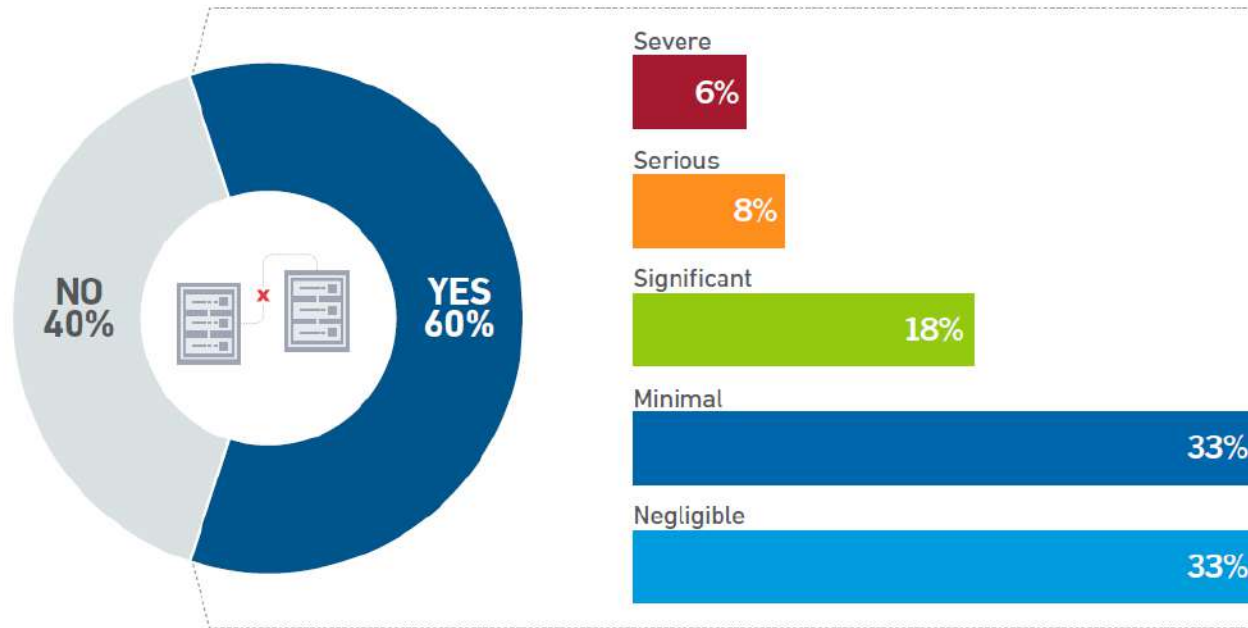
- Outage information is increasingly opaque, unreliable.
- Outage rates, especially the more serious, are falling slowly.
- Outage costs are rising, steadily.
- Commercial operators (cloud, colos, hosting, telcos) account ever more outages.
- Human error is omni-present and is the easiest to address.

Outage frequency and severity

Outages are common, but mostly not serious

Most organizations experienced an outage in the past three years

On a scale of 1 (negligible) to 5 (severe), how would you classify the most impactful outage your organization has had in the past three years, either in your own facility or because of a third-party service provider? (n=730)



(All figures rounded)

UPTIME INSTITUTE GLOBAL SURVEY OF IT AND DATA CENTER MANAGERS 2022

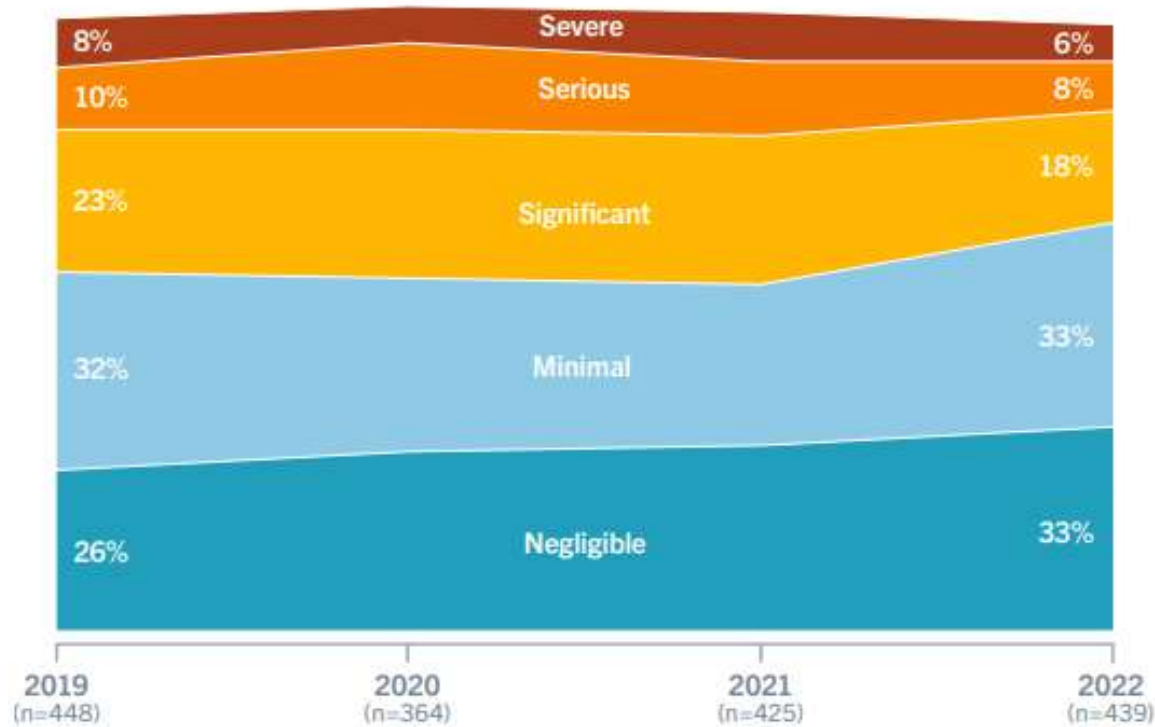
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- More than three quarters of organizations say they had no serious/significant outage in the past three years.
- Data over several years shows a slowly improving outage rate.

Fewer outages are significant, serious or severe

On a scale of 1 (negligible) to 5 (severe), how would you classify the most impactful outage your organization has had in the past three years, either in your own facility or because of a third-party service provider?



(All figures rounded)

UPTIME INSTITUTE GLOBAL SURVEY OF
IT AND DATA CENTER MANAGERS 2019-2022

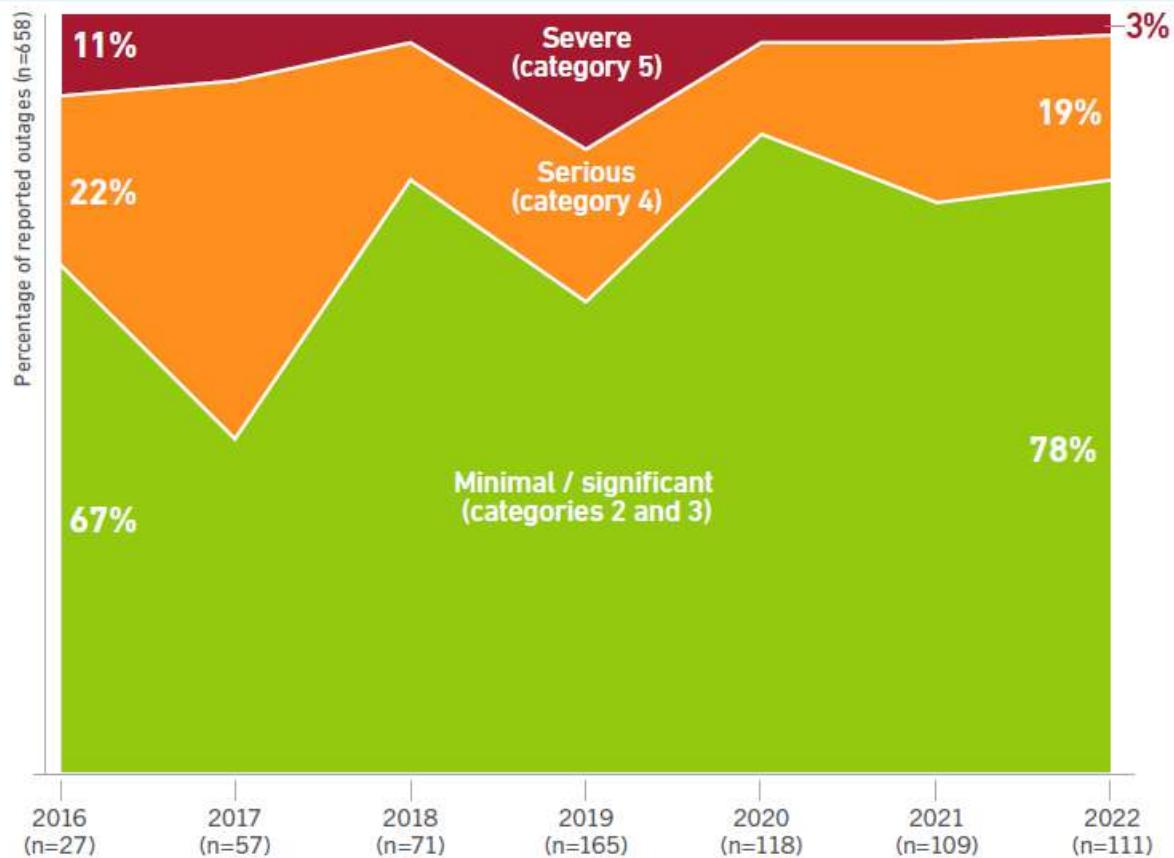
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- Outage severity appears to be falling – contradicting headlines and some other sources.
- The trend may reflect increasing use of cloud/distributed techniques to soften the impact.

Public outage data also shows reducing severity

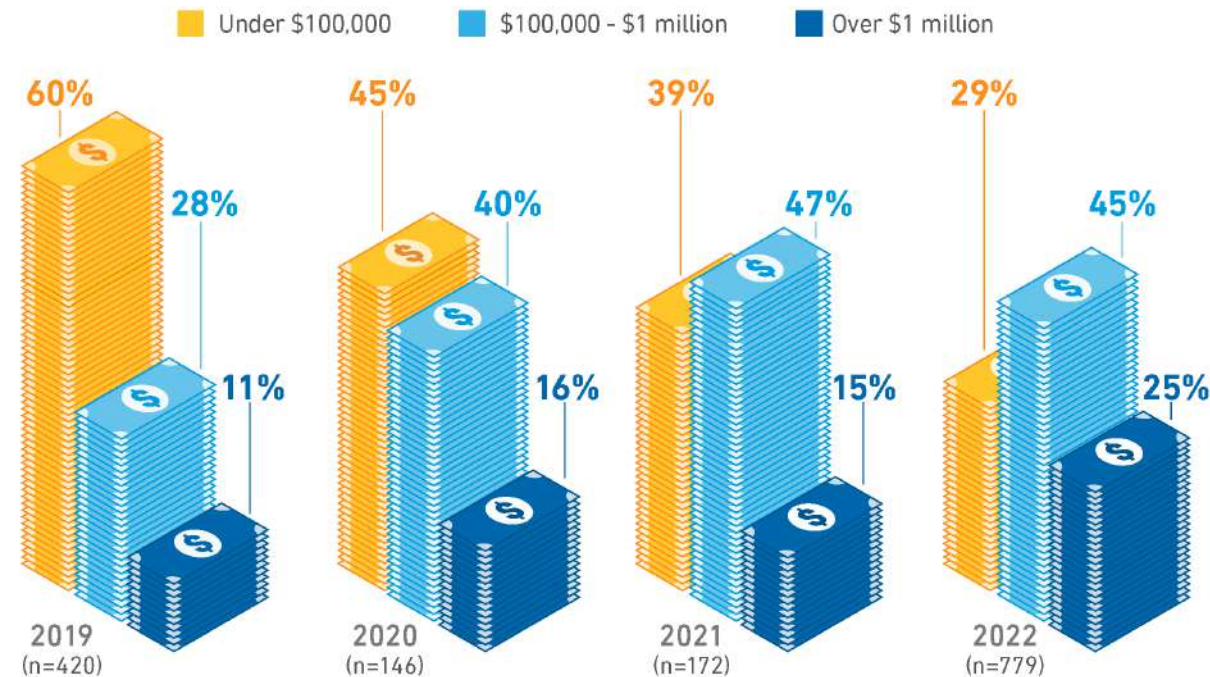
Proportion of publicly reported outages that were serious or severe, 2016 to 2022



(Category 1, negligible, outages omitted for all years.)

- Publicly reported outages also showing a falling proportion that are serious/severe.
- Numbers still suggest that every year, at least 15-20 high-profile organizations will suffer a major outage with financial, reputational and other consequences.

Costs per outage are rising



(All figures rounded)

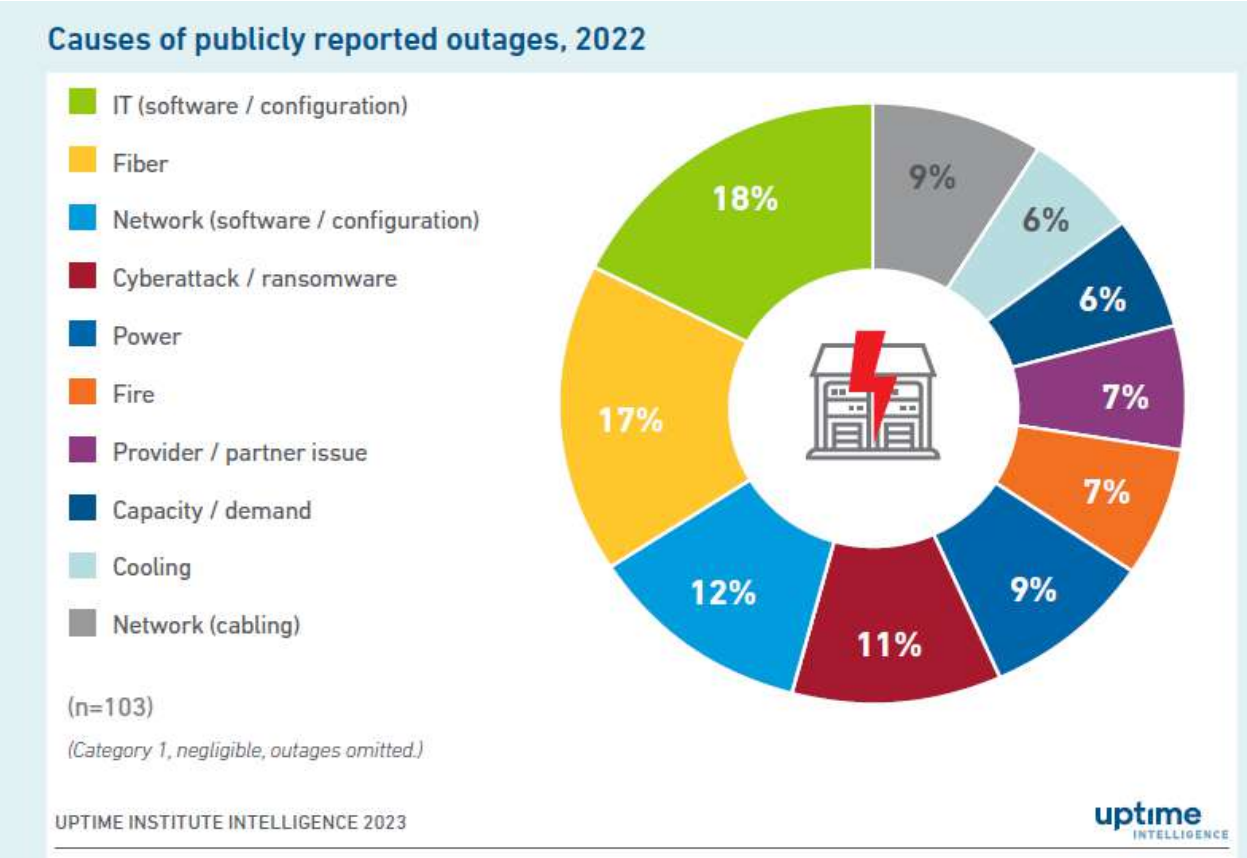
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- While “severity” of outages may be improving, the costs are rising.
- Outages have many direct and indirect costs – as does building in fast recovery.

Causes of outages

Publicly reported outages: Causes vary widely

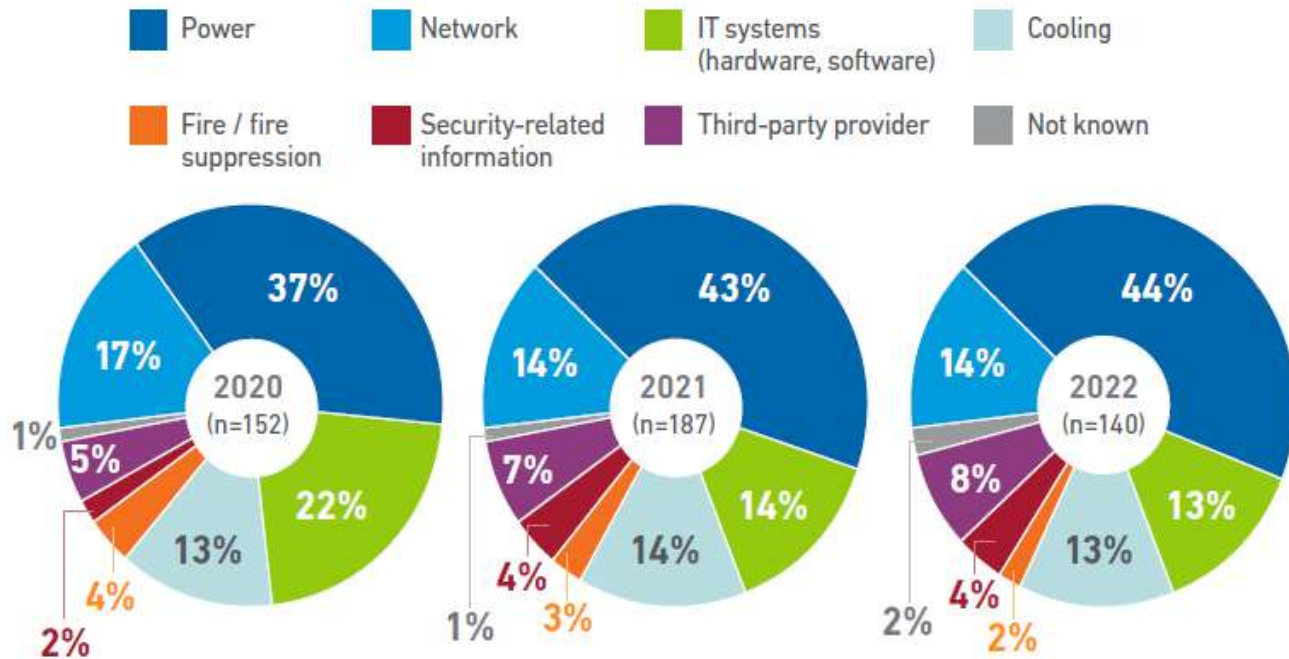


- Publicly reported outages show a wide variety of causes.
- Connectivity (fiber + network software/configuration) is the biggest cause.
- Ransomware/cyber attacks the fastest growing cause.
- Power is an ever-present cause.

Uptime Intelligence surveys: Leading causes of outages

Leading causes of significant outages

What was the primary cause of your organization's most recent impactful incident or outage?



(All figures rounded)

UPTIME INSTITUTE GLOBAL SURVEY OF IT AND DATA CENTER MANAGERS 2020-2022

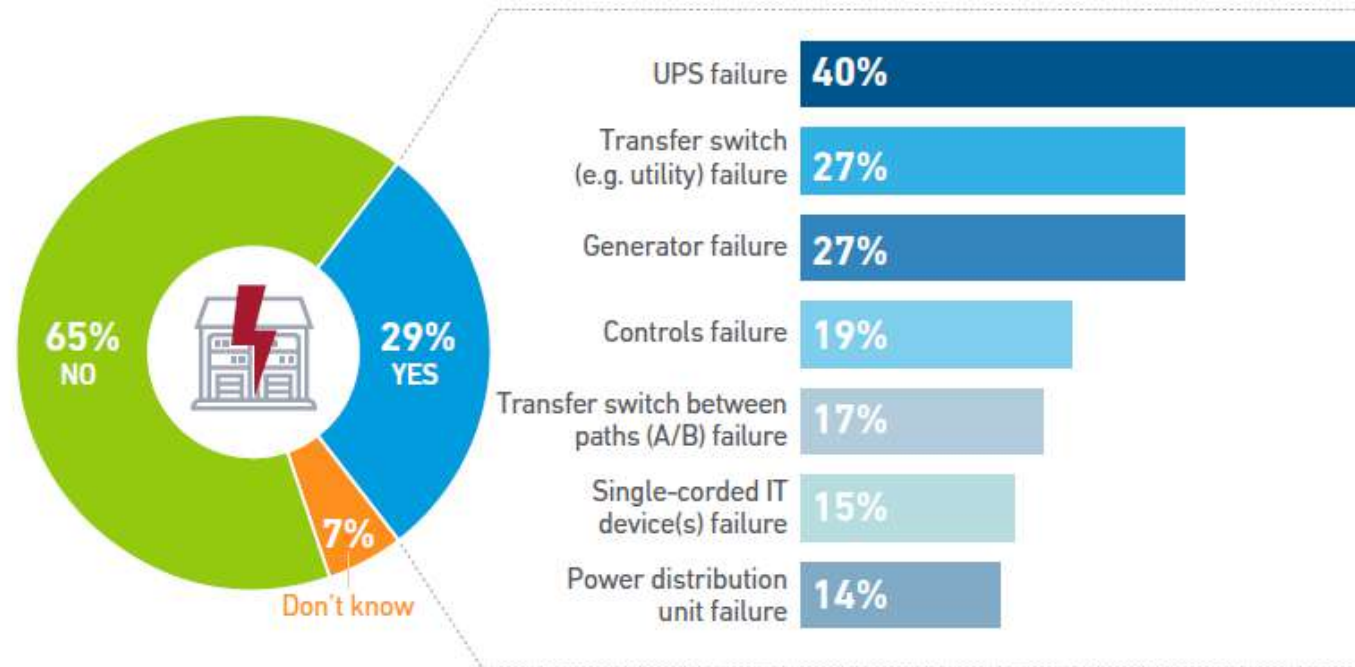
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- From a data center management perspective power is the biggest problem.
- IT, cooling and network follow.
- Third party outages (outside DC operator's control) rising slowly, steadily.

Most common causes of power outages

Most common causes of major power-related outages

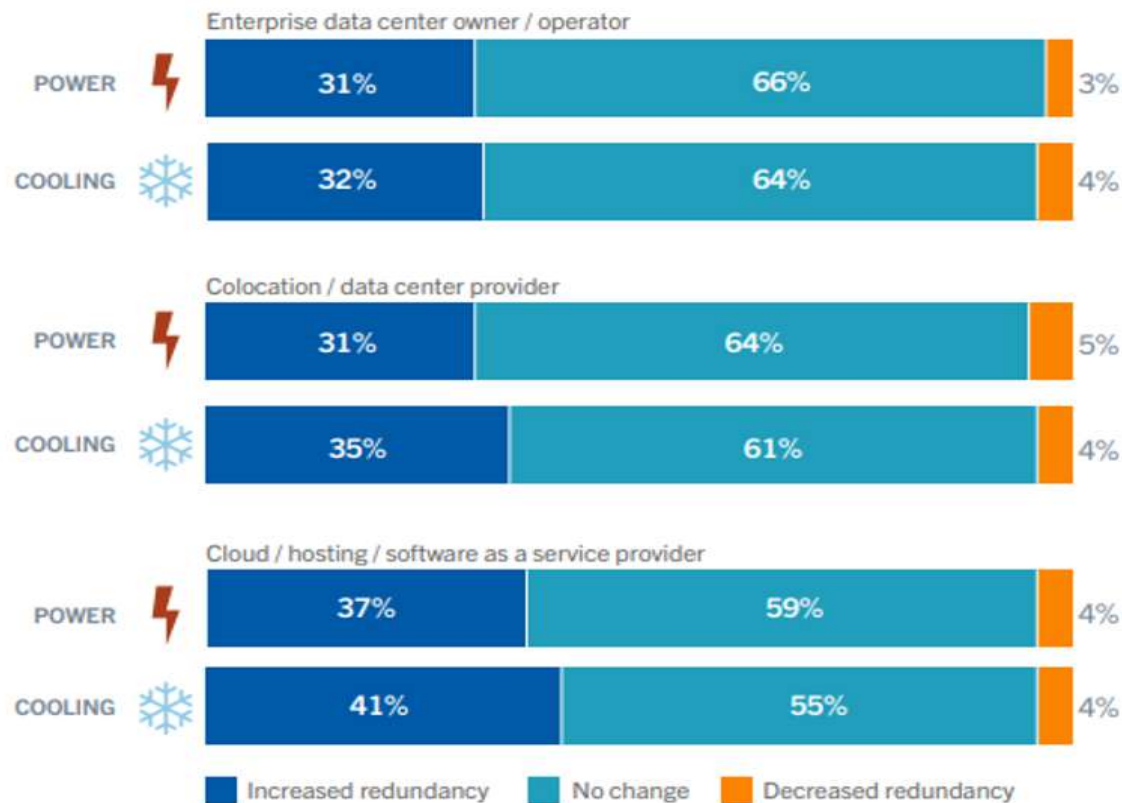
Has your organization experienced a major outage(s) caused by a problem with a power system over the past three years (n=393)? If so, what are their most common causes? Choose no more than three (n=113)?



- UPS consistently the biggest cause of failure.
- Transfer over to generator continues to be problematic.
- Are run times getting shorter?

Operators are investing more in site level redundancy

How have redundancy levels changed in the past three to five years in your primary data center?
(n=619)



(All figures rounded)

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IT AND DATA CENTER MANAGERS 2022

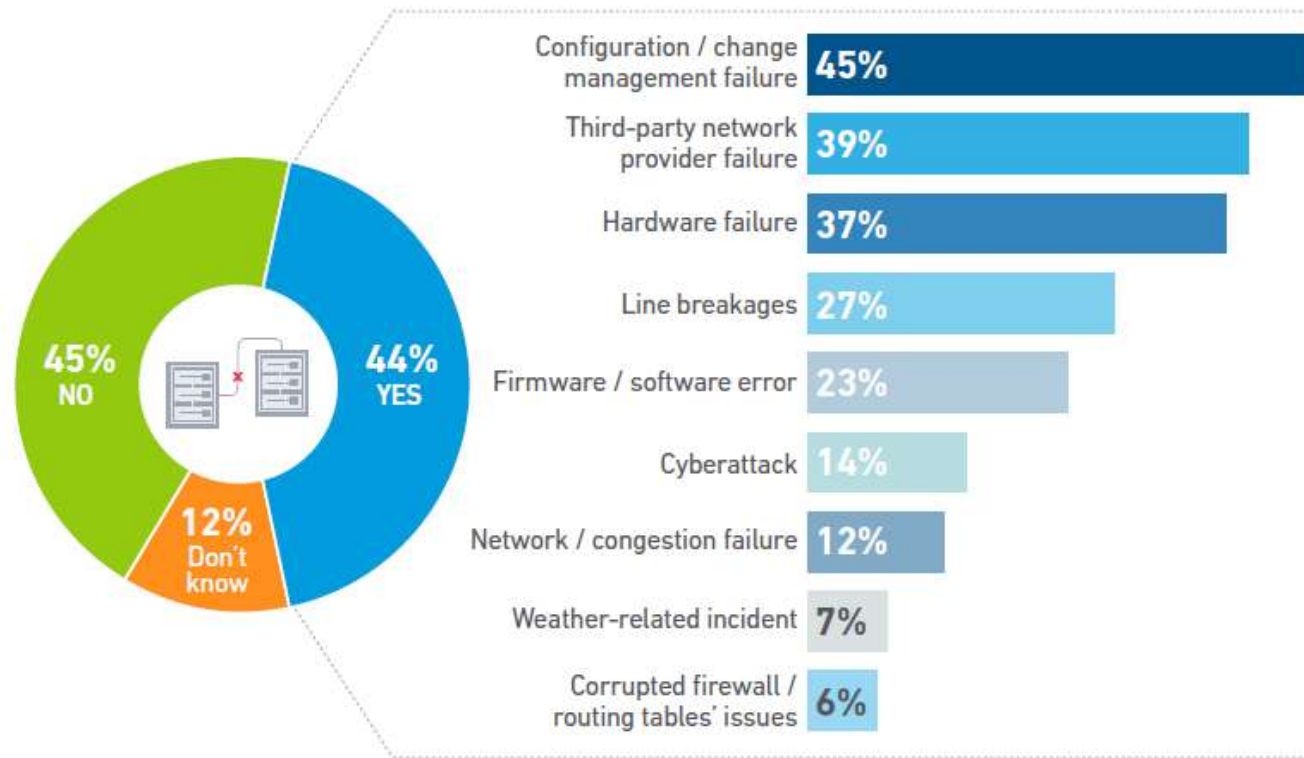
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- Operators are increasing investment in redundant power and cooling infrastructure.
- Distributed resiliency has not reduced the need for site-level resiliency.
- Cloud providers are increasing redundancy at the greatest rates.

Network outages – most common causes

Most common causes of major network-related outages

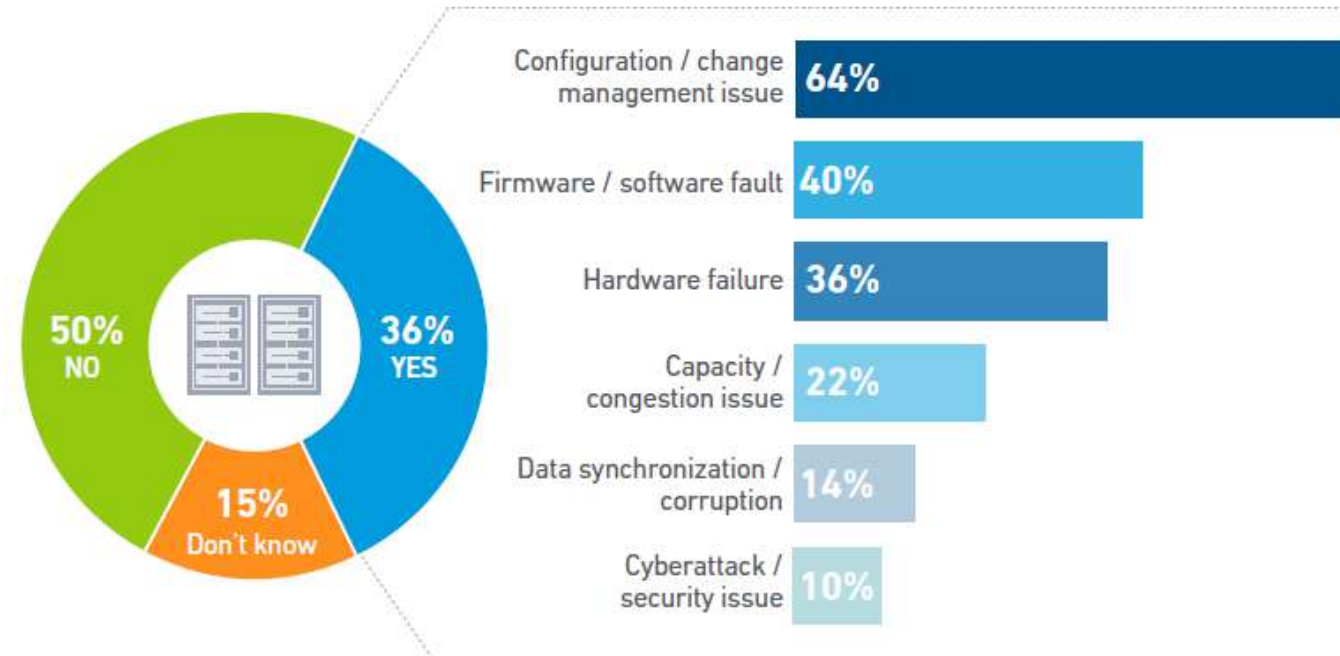
Has your organization experienced a major outage(s) caused by network / connectivity issues over the past three years (n=406)? If so, what are their most common causes? Choose no more than three (n=174)



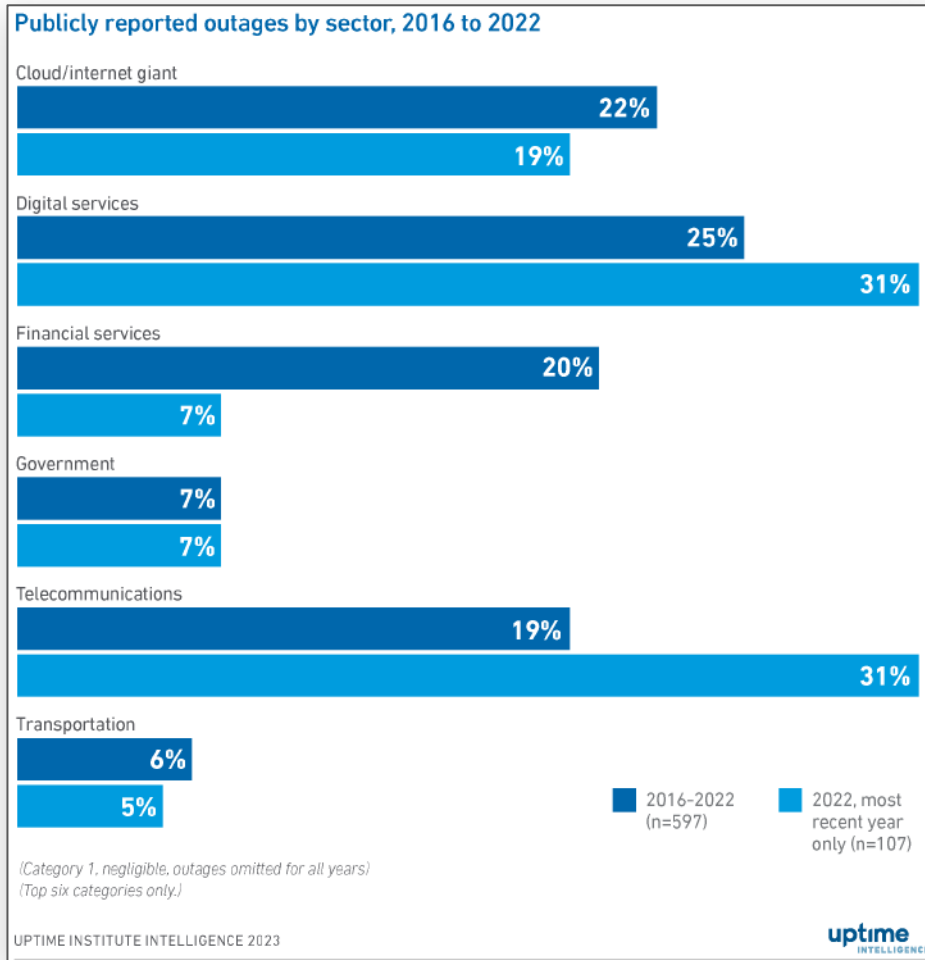
IT system outages – common causes

Most common causes of major IT system- / software-related outages

Has your organization experienced a major outage(s) caused by an IT systems or software failure over the past three years (n=385)? If so, what are their most common causes? Choose no more than three (n=136)



Public outages: Commercial operators suffer most



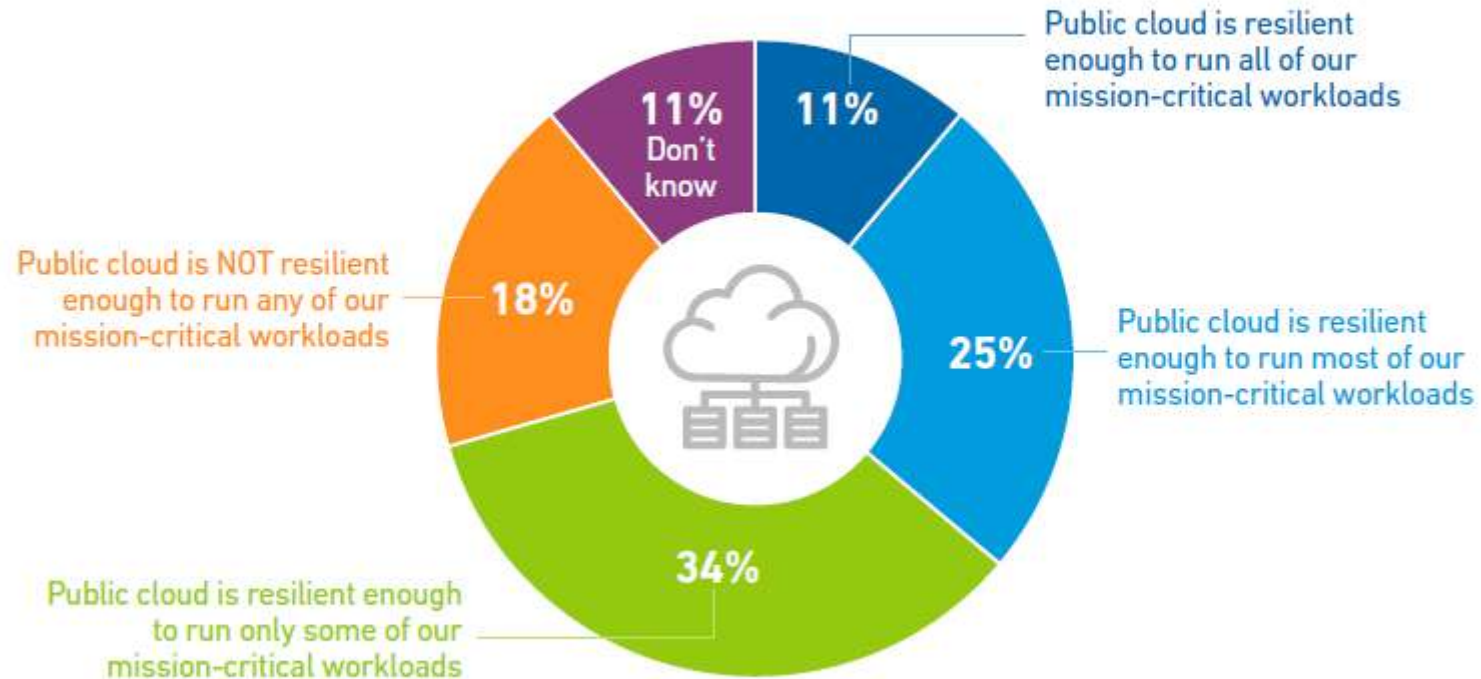
- Commercial operators (cloud/telco/digital services inc. colo) account for 81% of all high-profile outages.
- Financial services outages have stabilized after major incidents in earlier years.
- The data underlines the importance of third-party agreements/the need to focus on SLAs.
- Proper due diligence is required

ALERT Choose your partners wisely !

Cloud Resiliency: Good enough for some, not for others

Most say cloud only resilient enough for some workloads

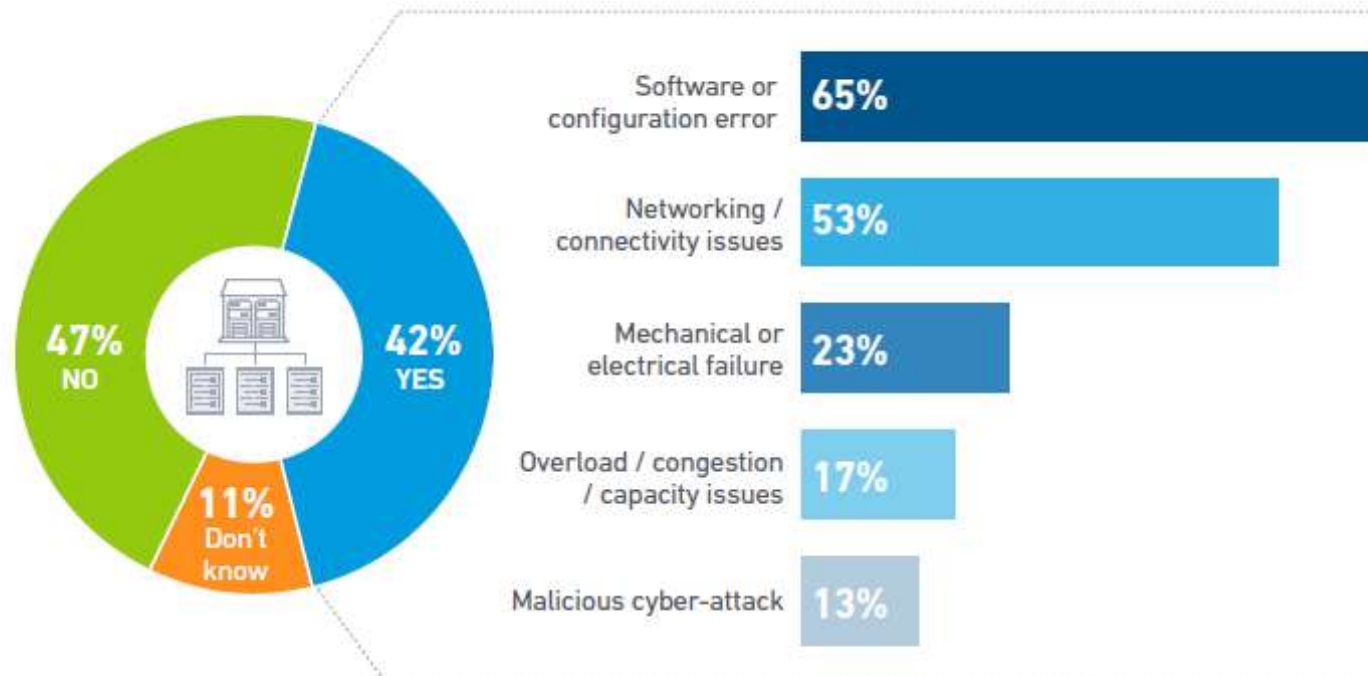
Regarding public cloud services, do you think public cloud is resilient enough to run all of your organization's mission-critical IT workloads, run most of them, run only some of them, or is public cloud not resilient enough to run any of your organization's mission-critical workloads?



Causes of Third Party (service supplier) outages

Most common causes of major third-party outages

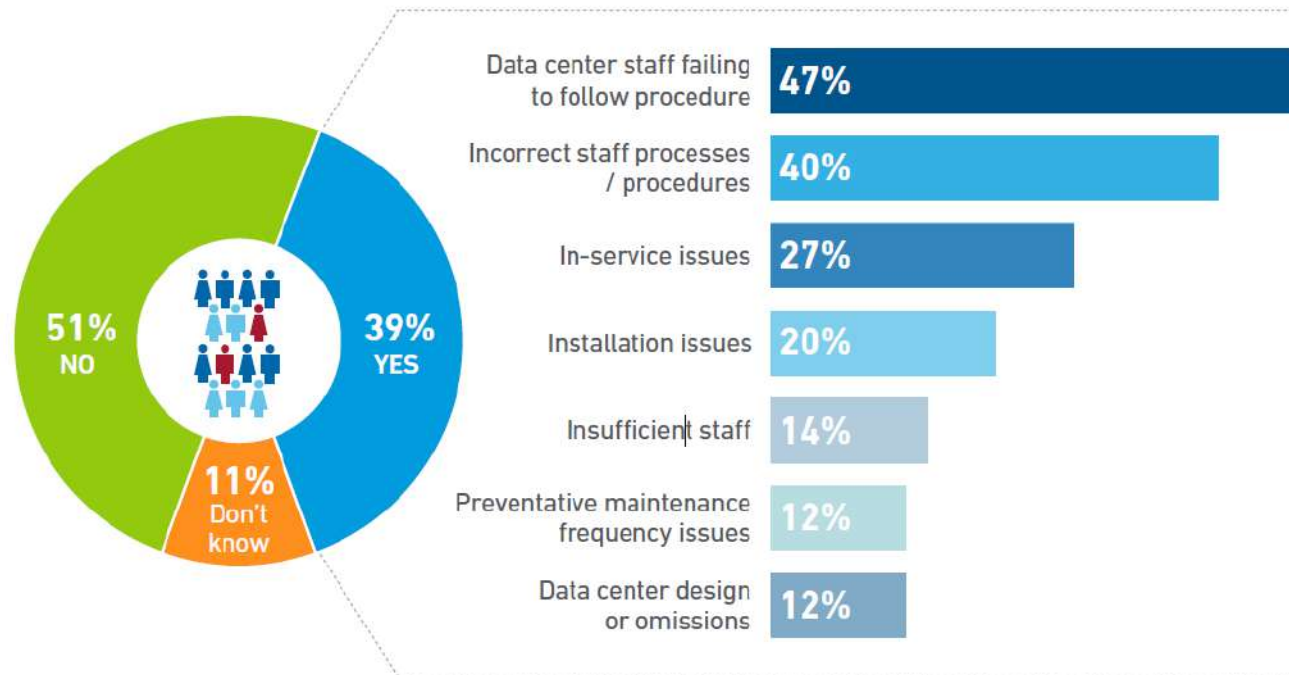
Has your organization experienced a major outage(s) caused by a problem with a third-party IT provider over the past three years (n=186)? If so, what are their most common causes? Choose no more than three (n=78)



Human Error

Most common causes of major human error-related outages

Has your organization experienced a major outage(s) caused by human error over the past three years (n=378)? If so, what are their most common causes? Choose no more than three (n=146)



- Uptime Intelligence data shows human error is implicated in most outages.
- Investment in processes and training and staff may be too low.
- The skills shortage may be taking its toll.

Recent analysis of 200+ Tier Facility Certifications

- The vast majority of even the world's most elite data center sites do not operate as designed/installed on day one.
- Data center owners comment that the Tier Certification demonstrations were more rigorous than their commissioning program.
- Tier Certification is a failsafe against a data center that doesn't work day 1, or, worse, in year 5.

Tier Classification System



Basic Capacity



Redundant Components



Concurrently Maintainable



Fault Tolerant

Why Tier Certification?

With multiple vendors, subcontractors, and typically more than 50 different disciplines involved in any data center project — structural, electrical, HVAC, plumbing, fuel pumps, networking, and more — it would be remarkable if there were no errors introduced or corner cut during the construction process.



Tier Myths

Myth: Can claim Tier level without engaging Uptime Institute

Only UI consultants can certify
If you are not on our website, they are not certified

- There is no such thing as **Tier like, based** on Tier
- There is no such thing as Tier +
- If such claims are made you should be suspicious



Questions?

Visit www.uptimeinstitute.com for more information.

Thank you for participating.

Further information from:

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