



Tier-1 Support Enablement

Root Cause Analysis and Application Performance Management



Presenters & Champions



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Focus areas: cryptographic equipment, IT Operations, Zero Trust

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Industries: E-Commerce, FinTech, Higher Education, Healthcare, IT, Cyber/Sec

Industries: Healthcare, IT, Cyber/Sec

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Agenda

- Scenarios & Context
- Application complexity over time
- Issue in running software applications
- Observability
- Gaps in observability
- Addressing the critical issues effectively
- Demonstration
- Observability in action
- Drive innovation
- QA



Scenarios

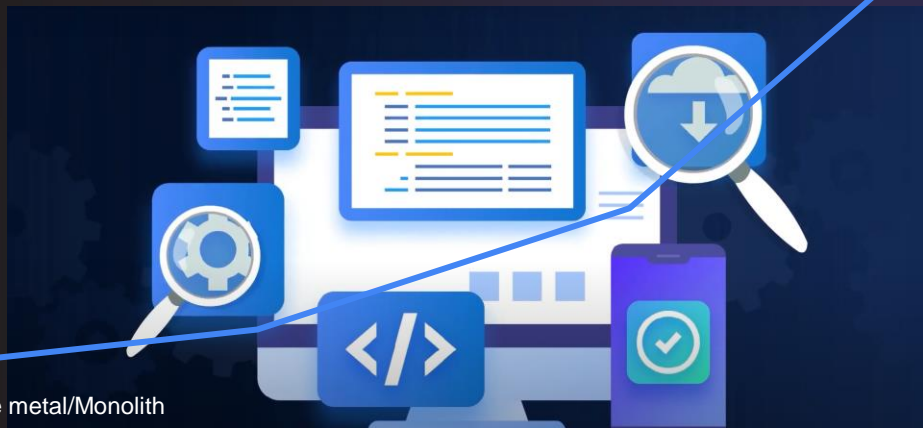
Critical and stressful takes from the day of the Tier-1 Support Engineer:

- A support engineer needs to find what's wrong with a system
- An engineer needs to determine if the issue is transient error or a bug
- Is the server down or is the backend having issues?
- A non-database administrator needs to find out if he/she is looking at a database problem
- A new Tier-1 support hire
- Get a problem fixed or involve the right resource as soon as possible



Software Application Complexity Over Time

Distributed/Microservice Application



Bare metal/Monolith

— Complexity

- Server Applications
- Desktop Application
- Web/MFE Applications
- Multi/n-Tier Application
- Microservice Applications

Sample Systems Survey:

- Vary in size (50KLOC to 2000KLOC)
- 20% exceed 500KLOC
- Considerable portion of the sample manifesting “high” to “very high” software complexity



Issues in running Applications

- Subtle Bugs
- Transient Errors
- Dependency Failures
- Breaking Changes
- Timeouts
- Incompatibilities
- SDK changes



100% Reproducible Locally and Consistent

— Supportability — Tooling Quality — Bug Complexity

Sources:

<https://medium.com/@igorwojda/the-bug-difficulty-spectrum-from-easy-fixes-to-complex-challenges-2392216411ec>

<https://plato.stanford.edu/entries/qt-uncertainty/>



Observability

Observability tools help software and operations engineers troubleshoot and monitor software applications. They provide visibility into an application architecture and operating characteristics, expedite error identification and resolution, and enhance application performance and tuning options.



Just one out of 10 organizations are utilizing full observability

While only 10% of respondents say they have full observability today – that is, observing the real-time status of every component of the entire technology stack – 36% of respondents feel they've partially started their journey, with plans to add more capabilities, and 20% are planning to start.



48% of organizations state that lack of knowledge among teams is the biggest challenge to gaining observability into cloud-native environments

This is up from 30% in 2023. In the face of a global engineering talent gap, even those organizations actively engaged in observability would appear to lack critical experience and insights needed to move forward.

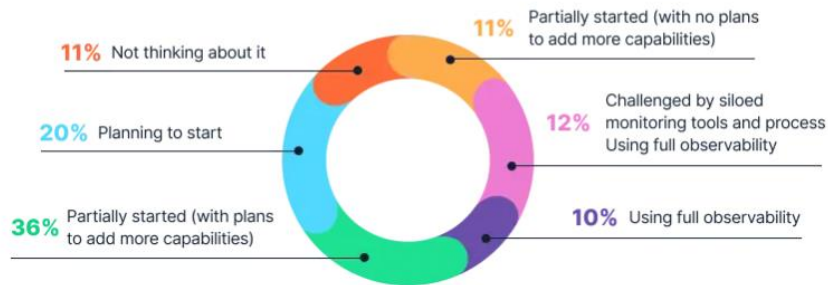


Observability Challenges & Gaps

We've heard from customers like you that the tools available to diagnose problems are burdensome, complex and require tremendous amount of effort to set up and run and use.



Where are you today in your overall observability journey?



48%

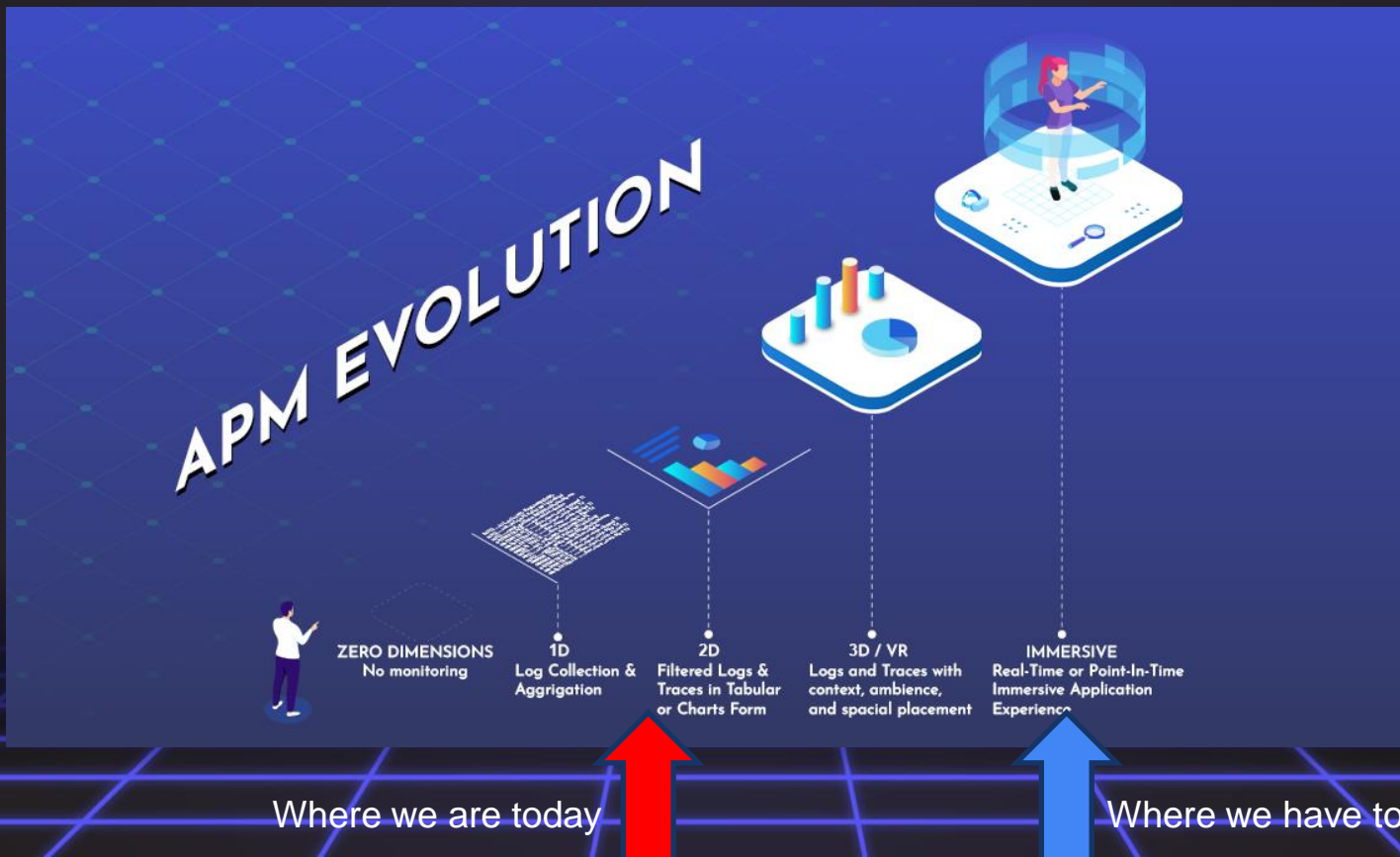
of respondents cite lack of knowledge among teams as their main challenge to gaining observability in their cloud native environment.

Observability Pulse 2024





A pivotal point in time





Immersive Fusion Approach & Methodology

- “Enter the application” concept
- Enable use of alternative approaches to traces and logs wading & surfing
- Provide high level & detailed views of the application
- Provide insights into application operation and component interaction
- Leverage the time dimension as an aid not treat as an obstacle
- Make the onboarding process painless
- Make the usage process quicker and simpler
- Require little to no training



Empowering Tier-1 Support Personnel

Properly facilitating observability tools and Root Cause Analysis (RCA) for an individual can transform a Tier-1 support engineer into a self-sustained, aware, well-equipped resource who can predominantly self-help or know which escalation engineer to involve next.

Application issues, bugs and outages are critical and stressful, but the process does not have to be.



Immersive APM (IAPM)

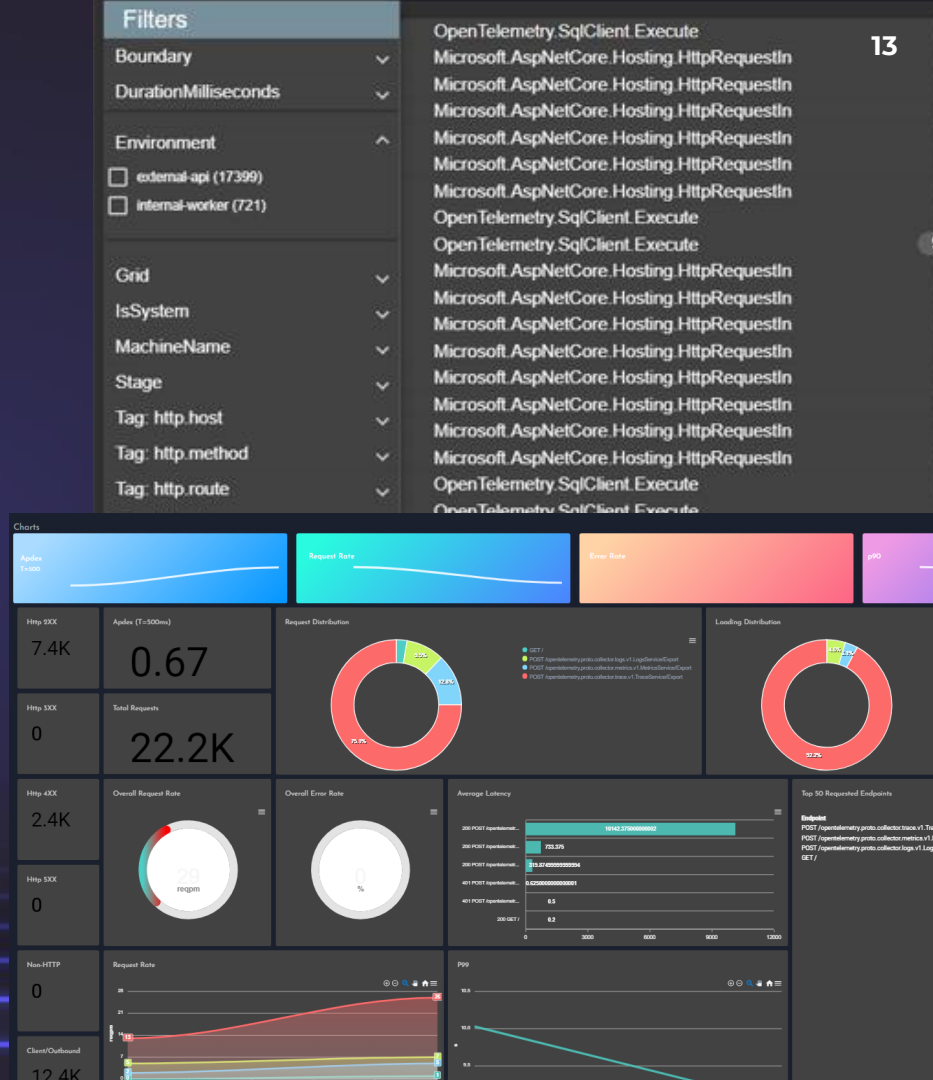
- Application Performance Monitoring (and Management) observability product by Immersive Fusion.
- Provides software and operations engineers with the ability to view their entire application all at once by utilizing web, VR, and 3D technology.
- Allows for quick and effective Root Cause Analysis, decreased downtime, and higher productivity.

“Anyone can become Tier-1 helpdesk level proficient in [application] health monitoring, and that’s huge beyond words”



Immersive APM Web

- Web Client allows users to Enter the World of Their Application through a web browser. It is optimal for users who do not want to install the client but rather easily access it on their mobile device or desktop.
- Suitable for new customers or those not used to immersion (VR).
- This is the conventional, non-immersive approach to APM.







Live Demo

Demo - <https://demo.iapm.app>
APM Web - <https://azure.iapm.app>



We showed observability in action

- We found what's wrong with a system
- We discovered if the issue is a transient error or a bug
- We recognized if the server is down or is the backend having issues
- We verified out if he/she is looking at a database problem
- We empowered a new hire but don't overwhelm them
- We determined the right resource as soon as possible



Immersive Fusion

Immersive Fusion (immersivefusion.com) is an observability innovator in Application Performance Monitoring and Management (APM). We create solutions to redefine the APM space. We focus on root cause analysis, tier-1 support enablement with an emphasis on simplicity, intuitiveness and efficiency.

Help us drive the innovation and change in observability tools!
Your support is critical.

We are looking for:

- Champions
- Partners
- Early-Adopters



Shameless plug



Immersive Fusion Platform Showcase / Fundraiser

Have you ever had to collaborate online on a drawing or a diagram and found the experience difficult or cumbersome? You are not alone! Find out more about how Immersive Fusion can address this problem using the Immersive Fusion Platform.

<https://fundrazr.com/collaborative-whiteboard-in-vr>

Q & A





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Extra Slides





MTTR & Root Cause Analysis

- Mean Time To Repair (MTTR), sometimes referred to as Mean Time To Recovery, is a metric that is used to measure the average time it takes to repair a system or piece of equipment after it has failed.
- Root Cause Analysis is the process of analyzing an event that had some undesired outcome and developing corrective actions. Speed is critical when conducting an RCA because maybe servers are down, vital functionality is unavailable or some other problem that must be mitigated as soon as possible.
- Being able to perform rapid Root Cause Analysis reduces time needed to repair and recover.

Improving MTTR:

- Standardize repair processes
- Improve troubleshooting procedures
- Conduct Root Cause Analysis
- Continuously monitor and measure MTTR
- Use Observability tools



MTTR is on the rise for the 3rd consecutive year

82% of respondents share that their MTTR during production incidents was over an hour. This is up from 74% in 2023, 64% in 2022, and 47% in 2021. As the primary KPI used by many organizations to track the state of their real-world observability practices, this is a highly concerning trend.

Sources:

<https://www.atlassian.com/incident-management/kpis/common-metrics>

<https://www.ibm.com/topics/mttr>

<https://www.ibm.com/topics/root-cause-analysis>

<https://logz.io/observability-pulse-2024>



Technology Adoption

The need to improve developer [as well as Tier 1 support] experience and productivity is driving technology adoption. High-quality developer experience has become a critical priority for software engineering leaders, with 58% reporting that it's very or extremely critical to the C-suite at their organizations. Enhanced developer experience or productivity is the top overall value factor for technologies and practices in the developer platforms and tools category, which includes performance engineering, internal developer portals, and browser-based IDEs.

Enterprise Value

The value factor awarded to each technology is based on analysis of value drivers, including improved speed and agility, enhanced developer experience or productivity, increased cost efficiency or savings, delivery of superior capabilities to the business or customers, and enabling resilience and reliability.



Deployment Risk

The risk factor awarded to each technology is based on analysis of potential risks posed, including cybersecurity risk, a lack of available talent, high or unpredictable costs, and technical incompatibility or architectural complexity.



Adoption Phase

The adoption phase is determined by the current deployment plans for a majority of organizations. Technologies placed on the border between phases are on the cusp of moving into the next deployment phase.



Sources:

<https://www.gartner.com/document/4095799>

<https://www.gartner.com/en/newsroom/press-releases/2023-04-24-gartner-survey-finds-the-need-to-improve-developer-experience-is-driving-software-engineering-technology-adoption>

<https://logz.io/observability-pulse-2024>



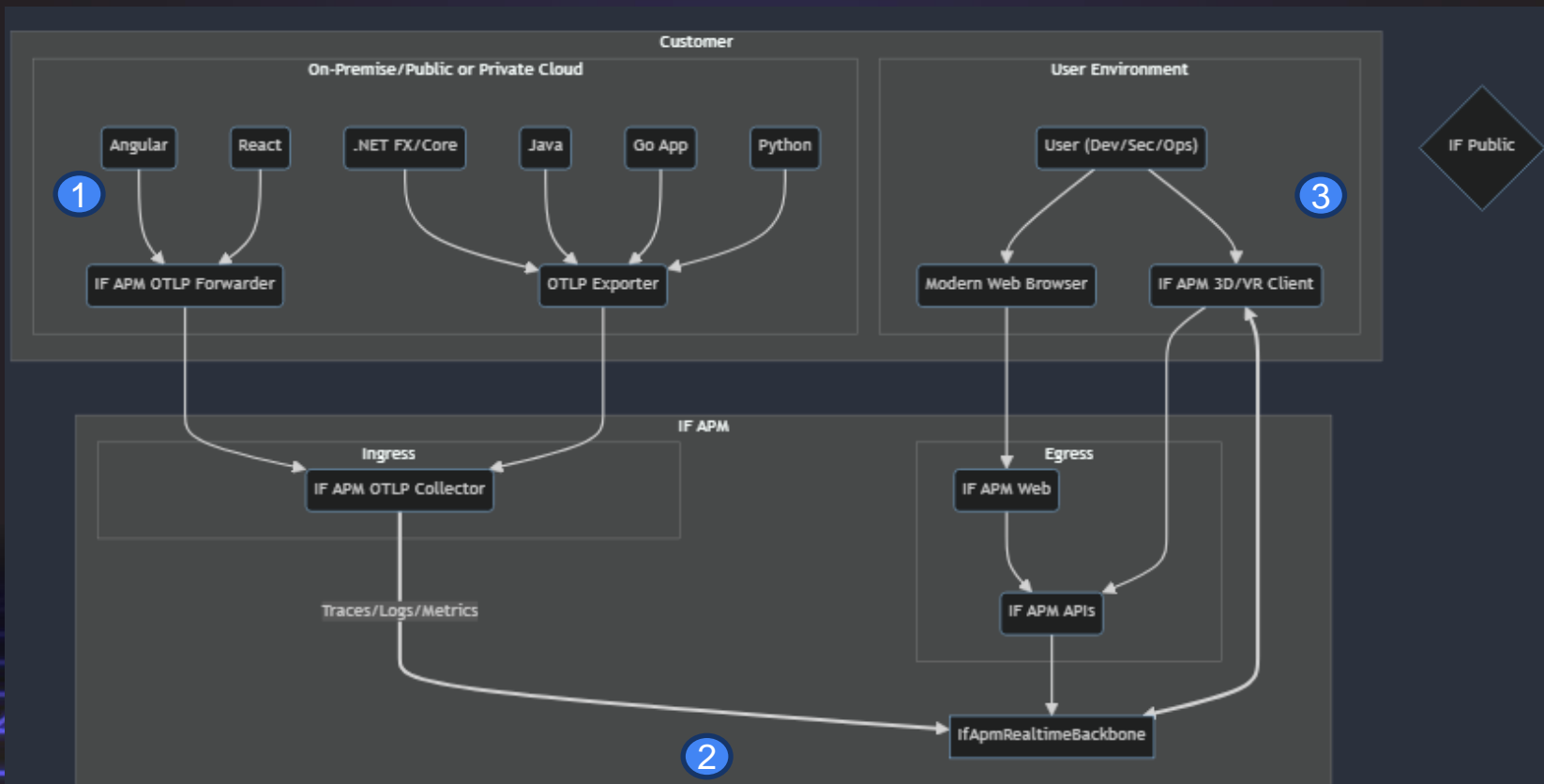
Costs are forcing organizations to adapt and evolve their observability practices

91% of respondents are employing one or method to reduce their observability spend. Ranging from trying to gain better visibility into their monitoring costs (52%), trying to adapt data management practices based on costs (38%), or trying to collect less monitoring data (32%) – it is clear that cost is still a primary observability challenge.





Immersive APM Dataflow





Enter the World of Your Application[®]



We didn't just trademark it;
we truly believe that...

*“being able troubleshoot an
application is best done from
'inside' it. When one can see
under the hood, is when
monitoring and management
become trivial”*



Gamification

Gamification is the process of incorporating game-like elements into non-game contexts, such as websites, apps, and other products or services. These elements can include points, badges, leaderboards, challenges, and rewards, among others.

“It may look like a computer game, but it’s an engaging product showcasing a better alternative to the status quo. It’s a game changer...”

Benefits

- Increased User Engagement
- Motivation and Behavior Change
- Data Collection and Analysis



Simplified Infrastructure Topology

Tenant

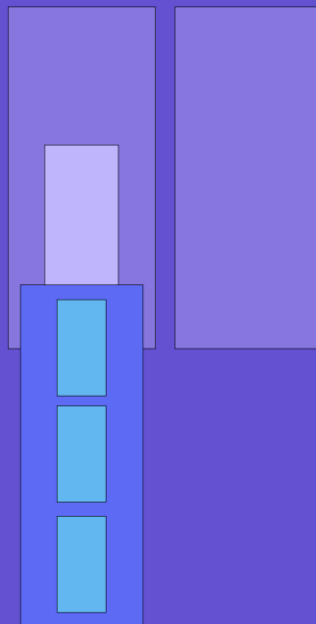
Billing Profile

Subscription

Environment (example: env-01-prod)

Grid

(example: app-01-prod, app-02-prod)





Immersive APM Process Differentiators

- Faster problem location, resolution and triage than conventional options
- Reducing information/cognitive overload
- Rapid root cause analysis
- Support engineer and new hire enablement
- Intuitive solutions to solve problems



Immersive APM Business Differentiators

- Minimal barrier to entry
- Raid / Low-touch / Turn-key Integration
 - API Key
 - Minimal step instrumentation
- Affordable & Intuitive Metered billing
- Entry-level Operator friendly
- Cloud Native
 - SaaS offering
 - Customer applications use only commodity libraries
 - Customer needed updates are infrequent and only in customer applications