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The Role of Unified Observability in Sustainable IT

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Corporate sustainability initiatives can take many forms such as recycling programs or efforts to reduce electricity usage. It may not seem obvious, but the IT department offers an often overlooked and valuable strategy for driving eco-friendly operations; a strategy that can both help an organization hit its sustainability goals and improve business operations.

While transitioning to renewable energy sources is a powerful approach to promoting sustainability within IT, minimizing resource and energy consumption presents an equally valuable but sometimes underestimated opportunity in this pursuit. Such projects can decrease carbon emissions, limit e-waste, and reduce the negative impacts an organization may have on the environment.

For example, companies can help to reduce e-waste by refreshing devices based on performance rather than at predetermined intervals. As a result, these eco-friendly initiatives help improve a company's bottom line, especially at a time when organizations are looking to increase cash flow.

Some regions are passing regulations designed to protect the environment (e.g., EU Green Deal), and sustainable IT can help companies achieve compliance. Additionally, reducing your organization's carbon footprint and e-waste will help increase the affinity your employees and your customers have for your brand.

Sustainable IT is good for business, but IT teams face challenges with implementing solutions designed to promote such efforts. These obstacles often come with problems around leveraging the appropriate data to drive decision-making around sustainability. In this white paper, we explore how unified observability and the visibility it provides can help companies leverage data to minimize resource and energy consumption—allowing them to achieve their sustainability objectives.

"Over 80% of digital workplace leaders have increased prioritization on environmental sustainability."

2023 Strategic Roadmap for Digital Workplace Infrastructure and IT Operations. Gartner

Challenges to Implementing Sustainable IT Solutions

A spectrum of challenges stand in the way of implementing sustainable IT solutions. The most prominent of these involves data collection. Others include data accuracy, striking a balance between performance and environmental impact, and the cultivation of awareness and behavioral change within organizations.

Collecting accurate data is extremely difficult

Aggregating data from diverse sources like cloud and on-premises systems is a formidable challenge in the pursuit of sustainable IT solutions. This challenge arises due to several reasons:

- **Data fragmentation**: In modern IT ecosystems, data is generated and stored across a wide array of platforms, services, and infrastructure. Each of these sources may have its data formats, protocols, and access methods. This fragmentation complicates the process of consolidating data into a unified and coherent format.

- **Compatibility issues**: Cloud-based and on-premises systems often use different technologies and standards. Bridging the gap between these technologies can be technically challenging, as they may not naturally communicate or share data. Integration efforts need to account for these incompatibilities, which can require additional resources and expertise.

- **Data security and privacy concerns:** When aggregating data from various sources, ensuring data security and privacy becomes a major concern. Different data sources may have varying levels of security measures and privacy regulations. Combining data from these sources without proper safeguards can expose sensitive information, leading to compliance issues and data breaches.

- **Data volume and velocity:** IT systems generate a massive volume of data at high velocities. Managing and processing this data in real-time can overwhelm an infrastructure and lead to performance bottlenecks. Ensuring that data aggregation processes can handle the data volume and velocity is crucial to obtaining accurate and timely insights.

- **Data consistency and quality:** Data from diverse sources may not always adhere to the same standards of consistency and quality. Inconsistent data formats, missing values, and errors can affect the integrity and accuracy of the aggregated data.

- **Resource and expertise constraints:** Building the infrastructure and expertise needed to aggregate data from various sources can be resource-intensive. Organizations may need to invest in specialized tools, personnel, and training to effectively manage and integrate data. Smaller organizations with limited resources may find this challenge particularly daunting.

- **Scalability:** As organizations grow and expand their IT infrastructure, the complexity of data aggregation also increases. Scalability challenges emerge when trying to accommodate the growing number of data sources and the increasing volume of data they generate.

- **Vendor lock-in:** Some organizations may face vendor lock-in when using proprietary cloud services or software solutions. Vendor-specific data formats and APIs can make it difficult to extract data for aggregation or to switch to alternative solutions, limiting flexibility.

IT must balance performance and environmental impact

Balancing the performance of IT devices with the goal of reducing environmental impact presents yet another complex challenge. Extending the lifespan of devices can mitigate electronic waste, but these devices must maintain performance for their users.

Balancing both needs forces IT to answer questions like:

- What are the hardware models of the devices across locations?
- How do workload requirements differ by employee role and function?

Data helps answer questions like these—provided IT can obtain, analyze, and draw conclusions from it.

Cultivating awareness and behavioral change is a critical success factor

Initiating sustainable IT initiatives often requires a cultural shift within organizations. Employees may unknowingly engage in behaviors that counteract sustainability efforts, such as leaving idle devices powered on.

For example, if they are working from home, their energy bill may not be a big enough concern to change their daily routine. Or, users may not want to deal with the additional time involved to restart (and re-authenticate) their devices every morning.

Overcoming these challenges entails more than just data collection and analysis; it necessitates effective communication and awareness-building in the workplace. And conversely, it requires IT to understand the underlying reasons for user behavior. While unified observability tools can play a role in this context, it's essential to focus on the challenge of changing behavior.

Unified Observability Makes Sustainable IT Possible

Unified observability is the cornerstone of sustainable IT initiatives by offering a comprehensive and real-time perspective on the state and behavior of IT systems.

Comprehensive unified observability platforms serve as a central data foundation, harnessing AIOps to eliminate blind spots, answer complex questions, and drive intelligent automation across the enterprise, at scale.

To empower organizations in making informed decisions regarding environmental impact and transform the vision of sustainable IT into a practical reality, robust unified observability platforms will offer:

- High-fidelity, full-stack performance data across operations and tools silos: Observability platforms that drive workflows from a 'sampling' of data such as event alerts and tickets reduce the accuracy and richness of context, insights, and decision-making. In contrast, unified observability platforms that collect and correlate granular, timestamped, complete, and immutable records of every event across the infrastructure serve as the cornerstone for accurate decision models tied to sustainable IT initiatives.

- Actionable insights: Knowing where to begin requires knowing where the most impact can be made. Comprehensive unified observability platforms provide user-first, actionable insights with the relevant context to the right stakeholders. Moreover, it allows IT Operations to answer complex questions about the endpoints, applications, infrastructure, network, and the interactions between them.

- Intelligent automation: Unified observability platforms that harness AIOps go beyond providing actionable insights and offer low code automation that models expert decision-making so that issues are resolved before they are raised as incidents. By streamlining sustainable IT initiatives with automation, companies not only improve operational efficiency but also their carbon footprint.

Here are just a few examples of how unified observability can support sustainable IT initiatives:

Resource optimization

Imagine an application that performs complex computations and multiple database requests when a user seeks specific information. Even if the app appears to be running smoothly, it likely consumes significant resources. By analyzing user requests and the corresponding application, database, and network workload data, we can identify optimization opportunities.

For instance, IT may implement caching for database access or computations, potentially enhancing resource efficiency, improving user experience, and reducing operational expenses, allowing for infrastructure downsizing where applicable.

Energy efficiency

Unified observability enables organizations to optimize the utilization of their IT resources, reducing energy consumption and waste. With this granular view of how applications and infrastructure interact, businesses can identify inefficiencies, redundancies, and areas of over-provisioning.

For instance, by analyzing real-time data on server performance and workload distribution, companies can make informed decisions about workload consolidation and virtualization, leading to reduced energy consumption and enhanced operational efficiency.

Digital employee experience (DEX)

Companies are shifting their focus to increasing employee happiness by leveraging DEX solutions. These solutions offer measurable and actionable insights to accurately assess the end-to-end user experience.

By analyzing deep performance data and user feedback via capabilities such as sentiment surveys, organizations gain insights into the environmental impact of routine tasks like emailing, printing, and device usage. DEX solutions enable IT organizations to baseline sustainability KPIs, integrate corporate sustainability values, and increase employee empowerment tied to these initiatives.

Device lifecycle management

Sustainable IT reshapes the process of managing devices, driven by real-time performance metrics that infuse accuracy and precision into every decision. Devices are no longer subjected to arbitrary refresh cycles; instead, their lifecycle is meticulously calibrated based on their actual performance, usage patterns, and overall efficiency.

By optimizing the timing of refreshes, upgrades, or retirements based on persona-based requirements, organizations ensure that their technological assets continue to serve their purpose effectively, thereby minimizing e-waste and conserving resources.

Riverbed Unified Observability in Action – featuring Energy Efficiency for DEX

Here, we present how the Energy Efficiency solution for DEM leverages the capabilities of the Riverbed Unified Observability platform.

Riverbed Aternity from Riverbed already offers the deepest quantitative insights into the digital experience for today's hybrid employees and the most powerful insights into the customer experience. With the ability to provide aggregated insights based on application and device performance data, human reactions, and benchmarking across industry peers, Aternity is a cultural catalyst for sustainable IT initiatives.

With its Energy Efficiency solution, Aternity:

- **Transforms** its actual end-user performance data into environmental insights (e.g., carbon emissions), and then centralizes it in a unified dashboard, enabling organizations to reduce their environmental impact.

  - Metrics include device uptime, carbon emissions, electricity consumption, and costs, enabling IT teams to identify energy-saving opportunities, cut costs, support reporting requirements, and promote behavioral changes.
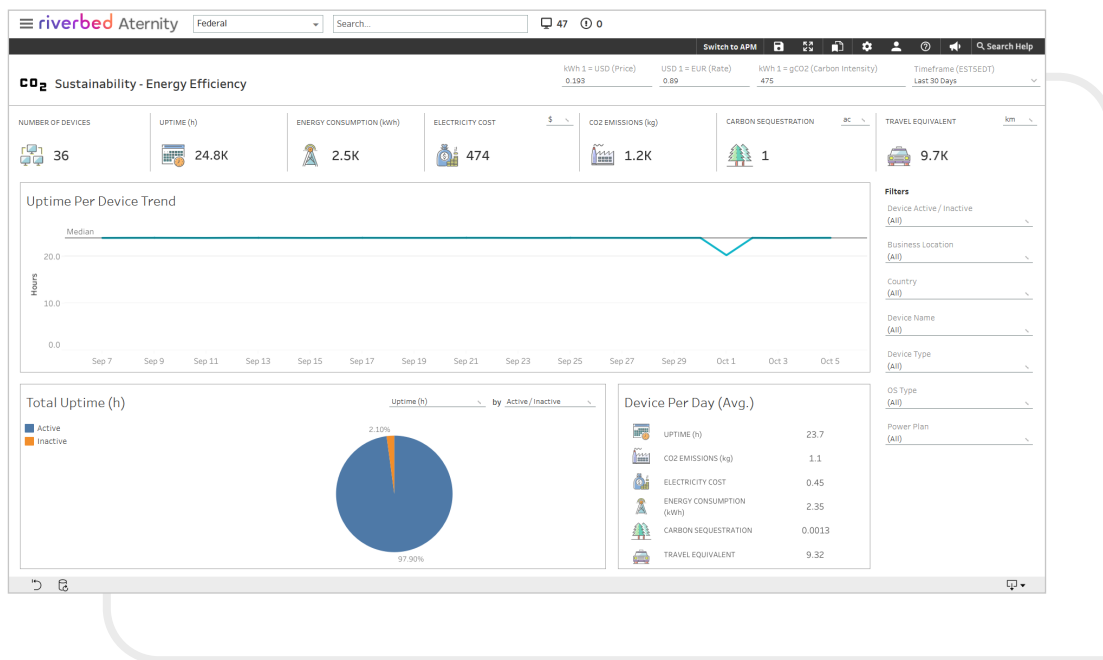
- **Translates** environmental insights into tangible 'real-world estimations' that possess a greater capacity to influence employee behavior.

  – For example, carbon emissions are converted into comparable units, such as the quantity of mature trees required to offset the CO2 emissions.

- **Automates** changes to power plan settings and informs users about their energy consumption while providing remedies to drive behavior changes aimed at reducing consumption.

  – For example, once Aternity identifies that employees are frequently leaving computers active overnight or during weekends, automated reminder messages can be sent to users to power down devices after work hours. Additionally, the system can enforce automatic hibernate mode for devices left unattended.

- **Deploys** sentiment surveys to enhance employee engagement, deepening understanding of employee mindset and persona-based needs while promoting the adoption of sustainable practices.

  – A variety of questions can be asked of the employee to increase their ecological consciousness and understand the mindset behind their energy consumption practices, such as:

    - Why do you keep your laptop on at night?
    - What is the cost of 1 kWh of electricity?
    - At the end of each day, are your switching your laptop, desktop and/or monitors off at the wall?
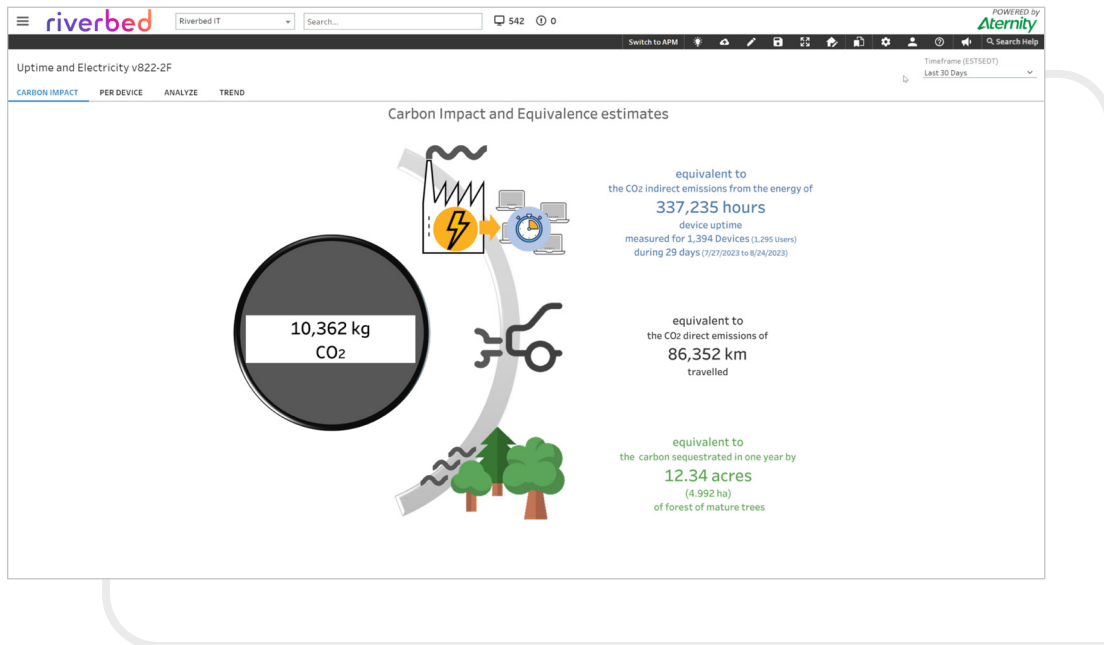
Leverage Unified Observability to Drive Positive Environmental Impact

Unified observability uses real-time insights and intelligent automation to enhance operational excellence and deliver tangible positive outcomes for the environment. It helps drive sustainable IT goals such as optimizing energy consumption, reducing hardware turnover, and maximizing the performance of IT infrastructure. This not only translates into direct cost savings but also has far-reaching environmental implications—lower carbon footprint, less e-waste, and a diminished impact on the ecosystem.

By harnessing the capabilities of robust unified observability platforms, organizations can not only drive significant operational efficiencies but also make a step toward leaving a lasting positive mark on the environment.

Request a demo of Unified Observability and see for yourself how it can optimize efficiencies and drive sustainability at your organization.

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About Riverbed

Riverbed, the leader in AI observability, helps organizations optimize their users' experiences by leveraging AI automation for the prevention, identification, and resolution of IT issues. With over 20 years of experience in data collection and AI and machine learning, Riverbed's open and AI-powered observability platform and solutions optimize digital experiences and greatly improve IT efficiency. Riverbed also offers industry-leading Acceleration solutions that provide fast, agile, secure acceleration of any app, over any network, to users anywhere. Together with our thousands of market-leading customers globally – including 95% of the *FORTUNE* 100 – we are empowering next-generation digital experiences. Learn more at riverbed.com.