Enhance Digital Workplace Operations With Machine Learning and Automation

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Initiatives: Digital Workplace Infrastructure and Operations

While some I&O organizations have dabbled in automating simple support and device management tasks, most have yet to automate digital workplace experiences. I&O leaders can transform operations by using ML-generated insights to drive automation and simplify digital workplace technology management.

Overview

Key Findings

- Infrastructure and operations (I&O) leaders are struggling to automate workplace experiences requiring the integration of endpoint management and desktop as a service (DaaS) with analytics and automation.
- A lack of automation skills in IT teams, combined with technical debt and legacy thinking, results in inefficient application and device life cycle processes that impact budgets and employee experiences.
- Operations effort and costs will remain higher for organizations that fail to capitalize on the integrating automation capabilities of digital workplace technology with machine learning (ML)-enabled analytics.

Recommendations

I&O leaders focused on digital workplace I&O must:

- Simplify physical and virtual endpoint management and eliminate low-value tasks by enhancing endpoint management tools with ML-enabled analytics and automation capabilities.
- Upskill engineers to develop new automation capabilities and emphasize product management practices to ensure prioritization, and adoption, of new capabilities in digital workplace services.

Strategic Planning Assumption

By 2025, 70% of digital workplace service transactions (service request fulfillment and incident resolution) will be supported or completed by automation, up from less than 30% today.
Introduction

I&O organizations have been successful in automating endpoint management activities such as building devices or deploying applications, but have not focused on more complex processes such as onboarding, predictive maintenance, and device or application performance. I&O leaders are under increased pressure to reduce digital friction and enable a more advanced digital workplace. This is triggered by user expectations of high performance and instantly available services, business expectations that digital workplace technology can enable new ways of working, and HR expectations that IT can be a differentiator for the recruitment and retention of talent.

Organizations that fail to modernize workplace infrastructures will see increased levels of technology debt, and fewer opportunities for integration and automation, resulting in increased costs and limiting the ability to create a modern workplace service. This research explains how I&O leaders can help improve the productivity of the workforce and significantly increase automation by integrating endpoint management, virtual desktop infrastructure (VDI)/DaaS, analytics and ML to enable self-healing and self-tuning systems that deliver richer user experiences — the concept Gartner defines as intelligence-driven experience automation (IDEA). The IDEA concept is shown in Figure 1.

Figure 1: Workplace Infrastructures Will Become Highly Automated and Self-Scaling

Workplace Infrastructures Will Become Highly Automated and Self-Scaling
Intelligence-Driven Experience Automation

![Diagram showing the IDEA concept](image)

Source: Gartner

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Analysis
Enhance Endpoint Management With ML and Automation

Digital workplace infrastructures are already undergoing transformation to cloud delivery using a combination of technologies, including cloud office, unified endpoint management (UEM) and DaaS/VDI (see Hype Cycle for Digital Workplace Infrastructure and Operations, 2020). I&O leaders should first assess their existing technologies to identify where automation can be applied and whether new tools are required that include preconfigured workplace analytics and automation.

Automation must focus on the workflows where human input offers least business value. Gartner recommends starting with the basics:

- Password reset
- Application deployment requests
- New endpoint provisioning
- File, printer and application access requests

Once basic processes are automated, I&O leaders can target more complex automation such as:

- Automatic scaling (up and down) of DaaS based on predicted usage demands.
- Automatic performance tuning of DaaS and/or endpoints to maximize user experience.
- Automatic configuration of a user’s workspace based on usage patterns and work setting segmentation or personas.
- Automatic deployment of OS and application updates based on usage patterns and low risk of compatibility issues.
- Automatic hygiene of cloud office workloads (e.g., decommission unused Microsoft SharePoint sites, Teams, Slack channels, distribution and security groups, Active Directory objects, etc.).
- Aligning automation with financial policies and performance needs (e.g., use analytics to assign higher or lower service tiers based on performance requirements).

IDEA represents a step change in the way workplace infrastructure automation is performed from the traditional event, heuristics, workflow or human-triggered automation, and helps enable these more advanced forms of automation.
The IDEA concept leverages data that exists today in endpoint logs, performance analytics tools and workplace infrastructure management tools. That data is generally held within and exploited by a specific toolset; for example, UEM tools gather data about the security and configuration of devices, and DaaS platforms have a wide set of data relating to virtual desktops and applications.

More advanced organizations may have also deployed endpoint analytics and digital experience monitoring (DEM) tools that gather rich data on the use, performance and experiences from endpoints. As UEM and DEM tools mature, a new category of digital employee experience (DEX) management is emerging. Note 1 shows a roadmap for automation. IDEA provides both short-term and long-term benefits when I&O leaders plan for updated tool capabilities and operational models.

ML is key to IDEA and, like the journey to self-driving vehicles, it will start with human augmentation, then react within controlled scenarios before progressing to predict and automate more complex scenarios. ML is essential because the volume of data generated by endpoints, endpoint management tools, virtualization platforms and cloud collaboration suites cannot be assessed and analyzed effectively by humans. IDEA will reduce the digital friction within organizations by streamlining and automating more processes that impact the end user. Operational costs should reduce as automation levels increase, but there are also business benefits. Automation reduces digital friction — what Gartner defines as the unnecessary effort an employee has to exert to use data or technology for work. Gartner research shows organizations with no digital friction have 20% more highly engaged employees compared to organizations with high digital friction. ¹

No single tool exists today to fulfill the IDEA concept, but endpoint management vendors have started to incorporate intelligent automation into their products, including 1E Tachyon, Ivanti Neurons, Lakeside Software SysTrack, Microsoft Endpoint Manager, Nanoheal, Nextthink, Tanium and VMware Workspace ONE.

Increase Automation by Upskilling Engineers and Emphasizing Digital Workplace Product Management Practices

Operating models are critically important to any automation strategy. As more automation is used, increased emphasis must be placed on continuous engineering and new responsibilities that support it. Of those defined below, focus on the responsibilities of engineers, product managers and release coordinators:

- **Operations** that identify automation opportunities as they support end users
- **Engineers** who will design, implement and monitor automations.
- **Product managers** who own the roadmap for automation, determine business value and face externally to vendors.

- **Release coordinators** who monitor changes within dependent technologies, help communicate benefits of automation, and design and publish artifacts to drive enablement and technology adoption.

- **Governance** that aggregates information and prioritizes key areas for automation.

- **Champions** within the business who provide feedback on automation initiatives.

- A **leader** who will draw all these roles together into a high-performance team with a business and technology focus.

For more guidance on these roles and to learn about implementing a digital workplace service organization, see [Adapt the IT Operating Model to Deliver Indispensable Digital Workplace Services](#).

Continuous engineering creates a cycle that improves automation levels over time (see Figure 2 and [Adopt Continuous Endpoint Engineering and Modern Management to Ensure Digital Workplace Success](#)).

**Figure 2: Automation With IDEA Will Follow a Continuous Engineering Cycle**

![Automation With IDEA Will Follow a Continuous Engineering Cycle](#)

**Automation With IDEA Will Follow a Continuous Engineering Cycle**

IDEA — Intelligence-Driven Endpoint Automation

- **Predictive Actions**
  - Scaling
  - Tuning
  - Self-Healing
  - Self-Service

- **Decisions**
  - Human
  - Machine-Suggested
  - Machine-Led

- **Analytics**
  - Trends
  - Process Mining
  - Anomaly Identification

- **Data**
  - Performance
  - User Experience
  - Logs
  - Usage

- **Policies**
  - Security
  - Financial
  - HR
  - IT
  - Business

Source: Gartner

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In the 2020 I&O Leaders Survey, when asked about the biggest challenges or threats to I&O for the next 12 months, 58% of respondents said insufficient skills and resources, and 52% highlighted managing technical debt as a concern. The 2020 Gartner IT Skills Roadmap also identified analytics and automation with the highest number of openings.

The key skills required for IDEA may not yet exist in most I&O teams and are in the highest demand in the external market. Skills required for IDEA include analytics, continuous delivery, cloud operations, automation, scripting and continuous engineering. I&O leaders will need to balance upskilling existing staff, utilizing external consulting or professional services, and recruiting new talent to fill the skills gap. The skills gap can also be reduced by selecting tools that incorporate analytics, ML, automation and integration capabilities within them.

**Evidence**

1. The number of highly engaged non-IT staff decreased from 42% in organizations with no digital friction to 22% for organizations with high digital friction. Source: 2020 Gartner Digital Friction Survey, 2019 IT Key Metrics Data. See [Presentation: Minimizing Digital Friction to Preserve Employee Productivity and Engagement](#).

2. The Gartner I&O Annual Leaders Survey 2020 found that 58% of I&O leaders ranked insufficient skills/resources in their top five challenges or threats. Managing technical debt was a top five challenge or threat for 52% of I&O leaders surveyed. See [Leadership Vision for 2021: Infrastructure and Operations](#).

3. The 2020 Gartner IT Skills Roadmap found that, of 298,250 job postings for I&O roles, 127,573 were for automation. This was the highest number, with the next skill being agile software development at 64,009 postings. See [Leadership Vision for 2021: Infrastructure and Operations](#).

**Note 1: IDEA Roadmap**

Automation offers short-term benefits, but most value comes from a long-term roadmap; a sample five-year roadmap for automation is shown in Table 1.
Table 1: IDEA Roadmap

<table>
<thead>
<tr>
<th>Month</th>
<th>0-12</th>
<th>12-24</th>
<th>24-36</th>
<th>36-48</th>
<th>48-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automation Target</td>
<td>10%-30%</td>
<td>30%-50%</td>
<td>50%-60%</td>
<td>60%-65%</td>
<td>65%-70%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Focus</th>
<th>Organization</th>
<th>BAU</th>
<th>Continuous Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools</td>
<td>UEM</td>
<td>UEM, DEX management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DaaS</td>
<td>DaaS, ITSM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DEM</td>
<td>Increased integration between tools</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITSM</td>
<td>Increased ML capability within tools</td>
<td></td>
</tr>
<tr>
<td>ML</td>
<td>ML for data analysis</td>
<td>ML makes suggestions</td>
<td>ML is allowed to independently operate (increases capabilities with time)</td>
</tr>
<tr>
<td>Outcome</td>
<td>Operations platform, reduced incidents</td>
<td>Self-service</td>
<td>Self-healing</td>
</tr>
</tbody>
</table>

Source: Gartner (March 2021)

Recommended by the Authors

Adapt the IT Operating Model to Deliver Indispensable Digital Workplace Services

2020 Strategic Roadmap for Digital Workplace Infrastructure and Operations

Adopt Continuous Endpoint Engineering and Modern Management to Ensure Digital Workplace Success

Leadership Vision for 2021: Infrastructure and Operations

Top Strategic Technology Trends for 2021

Hype Cycle for Digital Workplace Infrastructure and Operations, 2020

Harness Infrastructure-Led Innovation to Drive Digital Business Growth