Big Dave’s Excellent Digital UX Adventure—an APM Story

End-to-end application performance monitoring made his digital journey not only possible, but—liberating.
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Big Dave’s Excellent Digital UX Adventure—an APM Story

The Micro Focus® AppPulse Suite of user experience management solutions helps you to automate and accelerate the delivery of user-focused apps by isolating user experience issues from user action down to the line of code.

Best Freaking Day Ever

Big Dave is actually an average-sized man. He’s called Big Dave because he lives life large. Packs every day full of work, play, and the exploration of being alive.

Just before noon one Thursday, he was wondering why Steppenwolf’s “Born to Be Wild” was stuck in his head, playing over and over. Suddenly he smiled. An idea. It involved an open road, a vintage car, a kiteboard in the trunk, and a glimmering ocean just on the horizon. He glanced at the time. Work was under control. He could be there in three hours—if everything worked perfectly.
From his laptop he launched his favorite airline’s web app. Within three minutes he had booked his flight, selected his seat, ordered the cheese plate, and made his payment using rewards points. He grabbed his smartphone and hit the Uber app button. It took all of 30 seconds to arrange his ride to the airport. He threw his stuff into his canvas satchel and told his team he was on PTO until Monday morning. In 10 minutes he was on his way to the airport, using his smartphone to browse the classic cars available through his favorite car rental company. Found a ’65 Mustang convertible. Click, boom, reserved using his Gold Club. Now, where can I rent a kiteboard?

Three hours later all he could hear was the steady growl of his Mustang’s engine and the wind in his face as he wound through a gorgeous mountain pass headed to the beach. It was just one of those magical days.

And as he saw the expanse of the ocean coming into view, he reflected about how liberating today’s technology can be—when the digital user experience works the way it should.
Behind the Curtain: How E2E Application Performance Monitoring Made Big Dave’s Big Day Possible

Whether or not Big Dave was aware of it, the quality of the digital user experience (UX) in the web and mobile apps he used directly impacted the quality of his day.

Most DevOps teams are acutely aware of the importance of a great digital UX. Consider the example of the ScrumBums, the DevOps team at RapidFire International, a huge yet entirely fictitious enterprise. Their situation is typical of many DevOps teams trying to deliver a superb UX.

For example:

- They’ve seen the stats about the consequences of a poor UX
  - 53% delete an app that crashes, displays error messages or stops responding
  - 49% expect an app to respond in 2 seconds or less
  - 36% stop using an app if it has heavy battery or data consumption

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1 All statistics cited on this page are from studies conducted by Dimensional Research in 2015.
Like their peers, they’re focused on improving the UX

- 85% of companies are focused on the digital user experience
- 95% of mature DevOps teams focus on the user experience

But app teams don’t have the APM tools they need for end-to-end UX monitoring

- 57% of DevOps teams lack application performance monitoring (APM) tools featuring user experience management dashboards
- 67% have no insight into the line of code that caused an error, slow performance, or a crash
- 61% of developers are blind to the end-to-end process of monitoring the digital user experience

That is why the director of engineering of the ScrumBums recently undertook an initiative to identify and implement user experience monitoring tools that could truly work together—like his dedicated team—to make the UX of RapidFire apps a source of consistent delight and competitive advantage, rather than a source of constant heartburn.
What Does “End-to-End” UX Monitoring Entail?

The ScrumBums were well aware that delivering an excellent experience for users requires far more than the occasional load test, more than a quick scan of the comments left by reviewers at the app store, more than counting the number of user-reported crashes on a monthly basis.

It requires an intimate knowledge of who’s using your apps, what matters to them, and the ability to detect, diagnose, and fix any problems that crop up—instantly and continuously. In order to achieve that, the following monitoring capabilities are required:

- **Proactive monitoring.** Finding the performance or availability issue before your users do.
- **Real user monitoring.** Measuring real users’ experiences and focusing on what matters to them the most.
- **End-to-end transaction monitoring.** Tracing transactions from user experience to backend services and being able to drill down to the root cause of performance and stability issues; isolating the problem from the user action, to the network request, to the line of code.

Where Current APM Tools Fall Short for End-to-End Monitoring

The ScrumBums went through the frustrating process of evaluating the myriad APM tools that have appeared on the market recently—user-defined transaction profiling, mobile analytics solutions, alerting and trending tools, application component monitoring, etc. The diversity of the solutions only made their challenge more daunting. They found serious limitations in today’s APM tools, including:

- **They are point products that don’t cooperate.** It’s ironic: in an age where technologies are converging, consolidating, and connecting, APM tools are still disjointed. Multi-vendor APM tools rarely integrate well, and even APM tools from the same vendor often don’t work together either.
- **They are limited in their functionality.** Some tools do not measure from the end user’s perspective. For example, they measure only the network response time or they capture problems such as crashes without measuring the impact on the user. Others require developers to add tags to their code to measure the user experience. Still others only allow you to react to what has already happened, not prevent new issues from developing.
- **There is no drill down from the user action to the root cause.** One tool helps you identify a problem; another helps you understand how big the problem is—but there’s no visibility into exactly what caused the problem or what’s the best course of action to fix the issue that impacts the user experience.
Core Requirements for End-to-End Monitoring

Get beyond guessing; get the full picture of the end-user experience. The ScrumBums got tired of looking at the problems created by today’s APM tools and decided to simply list the attributes an effective end-to-end user experience monitoring solution had to deliver. They came up with three broad categories of functionality, which led to a list of six “must-have” capabilities.

Overall, the user experience management tools had to follow an integrated approach or at least be “integrate-able.” They had to deliver synergies from working together—synergies that compounded the benefits of using each independently. The core functionality requirements included:

- **Synthetic monitoring for proactive detection.** The team needed to be able to proactively find and isolate issues by application, location, user flow, or component layer so they could quickly address performance and availability problems.
- **Real user experience monitoring for mobile, web, and desktop applications.** The team wanted the ability to measure the user experience from the user’s perspective, follow user interactions screen by screen, and drill down to the root cause of app issues impacting the UX such as UI response time, errors, and battery or data usage in the case of mobile apps.
- **Transaction tracing for fast isolation and remediation.** The ScrumBums wanted to drill down into Web and mobile users’ transactions to isolate problems and diagnose issues—down to the code and transaction-specific log messages.
Six “Must-Have” End-to-End APM Capabilities

After some heated internal discussion, the ScrumBums finalized the following list of six key attributes an effective end-to-end APM and user experience management solution must deliver:

1. **Fits our needs, not someone else’s.** The ScrumBums were in full agreement that they needed to own the UX from start to finish. Not IT. Not some business manager with an English major. It’s simply too important to delegate any aspect of measuring and monitoring it to someone else. So they specified that their tools must assist with everything across the UX lifecycle—including not only planning and development, but also testing, production monitoring, and the feedback loop to development.

2. **Brings a user-centric approach to monitoring the digital UX.** The digital UX should be measured and monitored from the user’s perspective and not from a system perspective, the ScrumBums decreed. We need the ability to simulate user activity so we can realistically tell if our apps deliver what customers expect and monitor key interactions proactively to assure they are available and are meeting performance requirements in production. And we need to listen to our customers for performance feedback, so our tools should be able to collect digital user experience data associated with real customers.

3. **Gives us full traceability for fast troubleshooting.** To quickly resolve digital UX issues we identify, we need to see which user and server-side activities are associated with a problematic user action or business transaction, the ScrumBums determined. That means the monitoring solution should be able to tag and follow distributed transactions at each step along the way and give us relevant information about code execution, log messages, and third-party services. What we really need is a
solution that can feed the right information at the right time, in the right context, so we can quickly and easily find and isolate a problem down to its root cause.

4. **Allows us to analyze both mobile and Web users’ experiences.** A monitoring tool that can support only Web or only mobile is not good enough anymore for the ScrumBums. We need a single, consolidated, server-side end-to-end APM solution that can analyze both Web and mobile user experience problems. Regardless of the interface used to access our services, our troubleshooting experience should be similar so our engineers won’t need to learn two different tools or look at two different data streams.

5. **Helps us to fix what matters most.** We’ve got to be able to automatically prioritize issues based on impacted users, and fix those issues first, the ScrumBums decided. Our APM tools must arm us with the deep information we need to resolve the issue at the root cause. The tools need to allow us to quickly drill down, in context, and investigate the problem down to the line of code or log message. And we need to be able to keep our focus on the current urgent problem and not get distracted by other errors showing up in the logs.

6. **Monitors changes carefully.** The ScrumBums know all too well that new releases and configuration changes are a culprit in UX issues. A seemingly innocent code change might have unexpected consequences. Yes, there are unit tests, smoke tests, regression tests, integration tests, and other tests performed automatically or manually to catch problems early, but some issues slip through and reach production. The APM tools have to catch them before users do. The solution has to proactively check that all major user flows are behaving as expected in production. If one of the flows is behaving abnormally, we need the proper alerting in place and the ability to quickly dive in and investigate the problem in context with visibility into code execution and log messages.

**The ScrumBums Found the Right End-to-End Monitoring Tools, but Now They Can’t Find Big Dave**

Having identified the essential functionality and capabilities of an effective APM solution, the ScrumBums were able to quickly narrow their search. In fact, it didn’t take them long to find the solution that addressed the full spectrum of their requirements.

You can read about their selection, which was fully blessed by RapidFire’s CTO, the director of IT operations, and the director of engineering, by clicking here.

The good news is that the solution fully delivers on its promise of proactive, continuous tracking of relevant UX metrics and isolating UX issues from user actions right down to the root cause. The DevOps team is now able to measure, monitor, diagnose, and remediate issues in far less time and with far higher

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2 Plot twist
effectiveness than ever before, and that means release cycles can keep pace with both end-user and business requirements.

Funny thing: The DevOps team was preparing to brief its director of engineering about their experiences with the new end-to-end Application Performance Management (APM) solution over lunch recently—it was a Thursday, actually, right around noon—when they received word that he had suddenly departed for a three-day weekend.

They weren’t sure exactly why Big Dave had spontaneously vamoosed, but they knew he had it coming, and they knew he’d have some great stories for them when he returned. And the fact is, thanks to the new E2E APM solution, they were experiencing the same feeling of freedom and liberation as he was.

Learn more about Micro Focus solutions for managing and monitoring the user experience by viewing these web pages and resources:

- AppPulse Suite of user experience management tools
- AppPulse Suite Data Sheet
- eBook: Let User Experience Drive DevOps

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