

MINIMIZING THE TURNSTILE EFFECT

BALANCING THE MOBILE USER EXPERIENCE WITH
SYSTEM PERFORMANCE & SCALABILITY

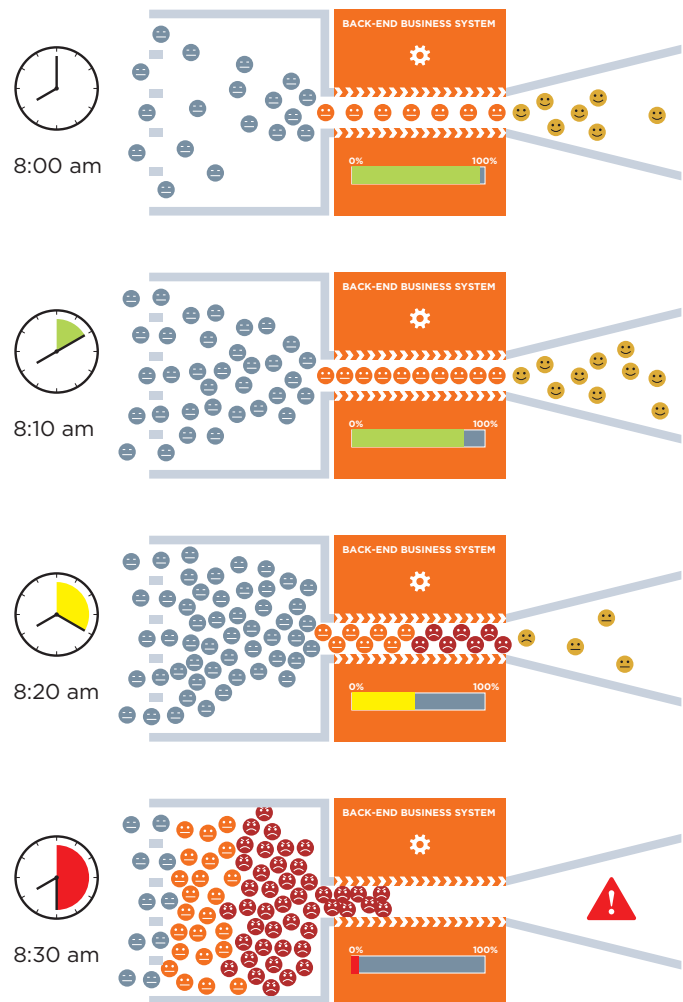


FIELD FLEX
MOBILE

The app looks great, but no-one wants to use it.

It's 8:00am and 300 field service technicians are starting their shift. Your new enterprise mobile business app is ready to go-live. Your users are excited about the prospect of getting rid of their clipboards in favor of mobile devices and not having to queue up at the limited number of shop computers to log their daily work. The thought of hopping in the work truck to pick up paperwork or sift through operating manuals back at central office are almost a thing of the past.

The lucky few who logged in first receive their work tasks for the day within a few minutes and are ready to go, but soon the system is brought to its knees. The rest are stuck waiting as the system can only process so many requests at a time - welcome to the turnstile effect.



1 User Experience Diminished

Majority of users are dissatisfied, and acceptance of the app is diminishing quickly.

In North America over 75% of the population carry smartphones or tablets as their personal mobile devices and are spending increasingly longer periods of time each year interacting with these devices – upwards of 3 hours per day with their favorite consumer mobile apps. It is easy to understand how personal use of mobile apps shape a user's perception of how all mobile apps should

perform – business or personal. For example, if we don't get instant feedback from our favorite apps we tend to become impatient and give up on them. In the enterprise it is similar; 60% of mobile business app users will abandon a transaction or may even delete the app if they don't see progress or receive a response from the app within three to four seconds. Performance is critical.

2 Productivity Lessened

Improvements through process streamlining is not realized and there is no improvement in data quality and volume of transacted mobile data.

One of the main ideas behind mobile apps for business (enterprise mobile apps) is to improve an organization's effectiveness & productivity, including streamlining business processes through app automation and logic, improving the worker experience with intuitive forms, providing potentially large amounts of critical data-at-hand quickly,

and capturing more & better data with proximity & sensing devices. If a mobile app fails to offer or deliver even one of these things, workforce effectiveness & productivity will drop. Your employees will take as long or longer to do their work than before. Your investment in mobile could be a sunk cost.

3 Success Jeopardized

Low user retention and abandonment will lead to a weak ROI, wasted investment.

You don't get a second chance to make a first impression, as the saying goes. If one user's initial experience with the new mobile app is negative, that user is prone to develop an overall negative sentiment toward the mobile initiative. And, the next thing you know that negativity has spread like wildfire throughout your organization and

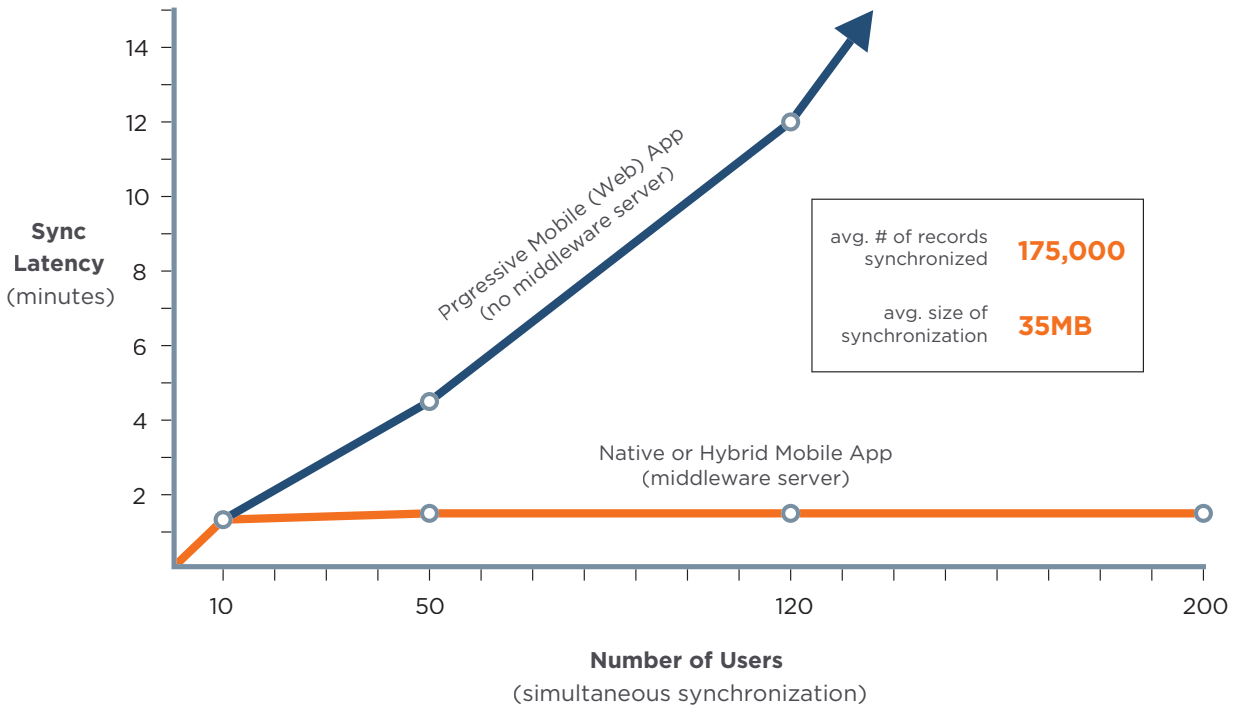
everyone will find excuses not to use it. At this point any attempts to fix the problems will balloon your investment and make your ROI timelines too long. Mobile technology evolves quickly, tangible payback needs to keep pace with your investment. You need to get it right the first time.

Generational Divide

First, we need to look at what is going on. You have bought or built a progressive or perceptive mobile web app that is perfect for your business, and takes advantage of modern mobile features, including offline capabilities. It is wired up to your legacy business system to move data between the mobile device and database. Your mobile users can login to the business system via their mobile app. Good, so far.

Processing Performance

When back-end business systems accept & process data requests – from desktop apps, web apps, mobile apps or integrations – the processing performance of the system is partially related to how many simultaneous or concurrent requests there are. At peak times during the business day, users clamoring to retrieve data, all at the same time, will feel the effects of a performance degradation. It doesn't take much. System stability, scalability and performance becomes affected at more than 10 concurrent mobile users.

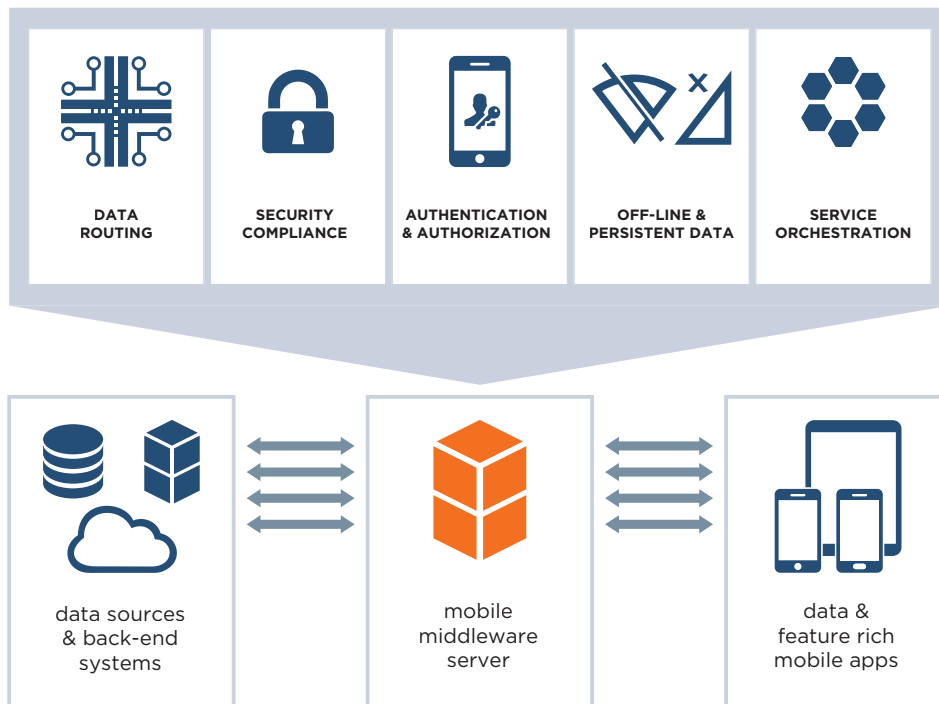


First Come, First Served

Over the decades, we've come to accept that accessing our enterprise systems through desktop or web apps can be slow or altogether unresponsive at peak times of the day. Workflow intensive enterprise apps accept simultaneous user requests (inputs) to process data via multiple streams. These requests accumulate in the app server's memory and are typically processed on a first-come-first-served basis resulting in increasingly slow output and response times as user requests continue to queue. This is the **Turnstile Effect**: your enterprise system generates few outputs from many inputs (requests) through a relatively small number of processing paths (workflows) critical to the operation of the entire system.

Avoid the Congestion

Unless your back-end business system was engineered after ca. 2007, it is certain not to have been engineered with mobile devices in mind. And, re-engineering such legacy platforms to adapt to today's mobile business processes and productivity apps is an extremely costly exercise. Years of use and interaction with consumer mobile apps has set an expectation that ALL mobile apps be fast, responsive and easy to use. What is overlooked is the business complexity, security and **SCALABILITY** requirements of enterprise mobile apps - Vis-à-vis, what is necessary behind the scenes to make an enterprise mobile app behave and perform like our familiar consumer mobile apps.

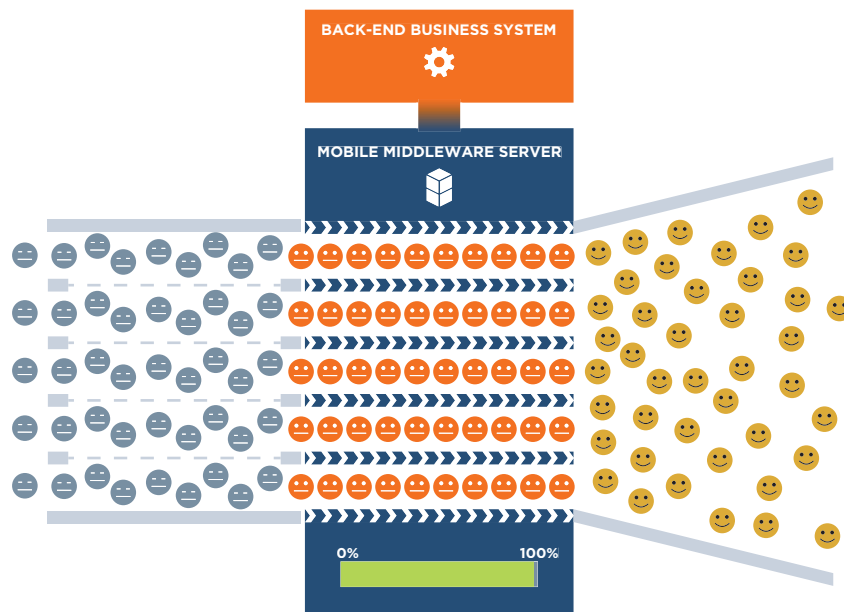


Mobile User Interfaces (MUIs), or front-ends rely on mobile back-ends to support access to enterprise systems. Mobile middleware facilitates data routing, security, authentication, authorization, working off-line, and service orchestration. This functionality is supported by a mix of middleware components including the FieldFLEX mobile app server, and web services (SOAP & REST) infrastructure.

BENEFITS

The mobile middleware server plays a critical role between your legacy enterprise applications and your modern enterprise mobile apps. In effect, the mobile middleware server opens more and faster lanes for your mobile users to access their data. However, opening more lanes does not always result in increased data flow. Data flowing between your back-end business systems and mobile devices must

be optimized to ensure maximum performance. Two key ways to optimize mobile data are to subset the data by user role and geography (or location), thus ensuring the mobile user receives the only the relevant data for their worker role and the location(s) pertinent to them. This will dramatically reduce the amount of unnecessary data flowing to the mobile user.



ADDITIONAL BENEFITS

TRUE OFFLINE

Mobile users can never predict when or where their device will go offline. There is nothing more frustrating than to lose data or updates when you unknowingly lose signal which can occur anytime, anywhere. Building materials, such as steel reinforced concrete or glass, will degrade or limit network signal. Similarly, high network traffic from bandwidth consumption, or poor proximity to

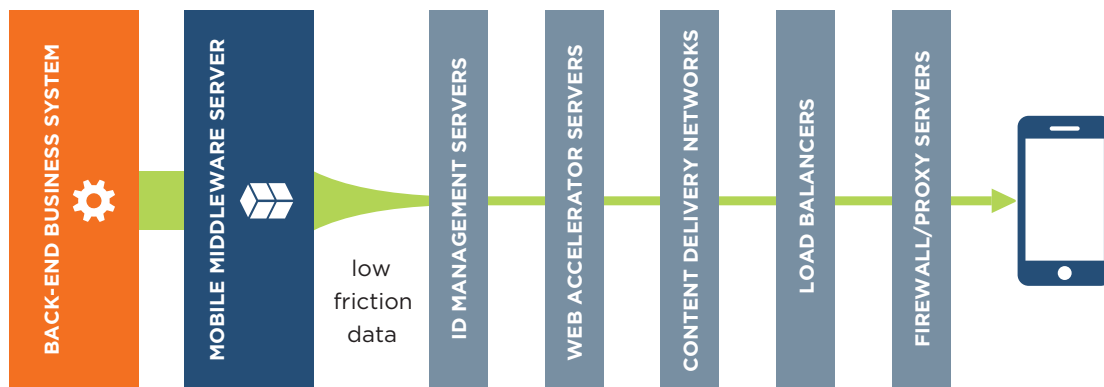
network access points will impede signal strength. This frustration, productivity loss and data loss can be eliminated with a mobile solution that preloads all the mobile user's relevant data to the device and be usable in the event a network signal is lost. This guarantees the mobile user can continue working without any loss of data or mobile application usability.

ADDITIONAL BENEFITS *(Cont'd)*

LOW-FRICTION DATA

IT and network security policies are top of mind for enterprises as they manage risk. It is necessary and unavoidable. Often, however, connecting your enterprise mobile app to your legacy enterprise business system is not an uninterrupted straight line. IT organizations place intermediary hardware and software in between, such as authentication servers, website accelerators, content delivery networks and load balancers. The net result when traffic is forced

through these gates is diminished performance as mobile users request data from the back-end system. Performance degradation in sophisticated networks can never be eliminated entirely, but it can be reduced significantly. Mobile middleware can produce low-friction data using data minimization techniques, significantly reducing lag time through the network gates.



CONCLUSION

As you design and plan an enterprise mobile deployment, keep the mobile middleware server top-of-mind, especially if you are adding mobile functionality to a legacy system. A middleware server will help mediate between familiar consumer mobile app performance and the reality of the enterprise. An enterprise mobile platform must be able to democratize your back-end systems and process large data volumes to and from the mobile device - FAST. Plan on moving up to 250,000 data records at any given time preparing for the eventuality of needing all relevant data when the user goes offline.

Also, consider conducting a mobile readiness assessment. Assessments aim to uncover many truths about what businesses need in a mobile platform and offer recommendations to comply with IT policy and mobile best practices. Assessments support your mobile vision rather than just current mobile needs or wants. Enterprise-ready mobile platforms will get you most of the way there, but going live with a high-performing, usable app requires deep engagement from all stakeholders to make it successful.

And, a last note on mobile apps themselves - design should be prioritized and prioritized on the end-user's data and usability needs. Enterprise mobile apps must be role-based accounting for specialized and personalized user experiences - one size does not fit all as apps do in the consumer world.

ABOUT FIELDFLEX

FieldFLEX is an enterprise-class mobile platform deployed to over 10,000 users globally in organizations ranging from Universities to Fortune 100 enterprises. Since 2003 our team of experts has been dedicated to mobile software product development of business productivity applications for corporate and institutional workplaces. We embrace a mobile first design philosophy and our agile development team is dedicated to building real-world enterprise mobile products to lead the industry.

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