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OFFERING OVERVIEW

Infor OS Powers Next-Gen ERP With a Rich Platform

AI, Cloud, and Data Capabilities Enable ERP Success Powered by Infor Operating Service

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constellation
R E S E A R C H

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EXECUTIVE SUMMARY

This report provides an overview of how Infor Operating Service (Infor OS) elevates Infor's enterprise resource planning (ERP) offerings. Infor developed a strong partnership with Amazon Web Services (AWS) early on and in 2014 became the first ERP system to operate on the public cloud. As Infor began to co-innovate with AWS for shorter time to value, it became clear that the company needed a new underlying platform to expand its integration efforts (Infor Intelligent Open Network) into a larger enterprise application platform (EAP).

Fast-forward to 2022: Infor now has one of the most mature and complete EAP platforms in the market, thanks to its continued focus on hyperautomation, data elevation, and intelligence; a growing developer ecosystem; and updated no-code capabilities.

The other vendor offerings covered in full in the Constellation Market Overview[1] are (in alphabetical order) Microsoft Dynamics platform, Oracle NetSuite SuiteCloud platform, Oracle Visual Builder, Salesforce Platform, SAP Business Technology Platform (BTP), Unit4 People Platform, Workday Cloud Extend, and the Zoho Creator platform.[2]

BUSINESS THEMES

New C-Suite   Technology Optimization   Data to Decisions   Future of Work

ABOUT INFOR OS

Overview

Infor needed to develop a strong EAP, not only to connect its various software products but also to enable its new-product development and ongoing innovation, focused on Infor CloudSuite's purpose-built industries and microverticals automation. Not surprisingly, Infor began with strong support for the EAP Integrate use case, with the launch of Infor Intelligent Open Network (ION) in 2011. In 2014 Infor bundled its platform offerings into the Infor Xi platform, a collection of all modern technologies the company had developed at the time, including ION, ION API gateway, Ming.le, Infor Document Management, and Infor Business Intelligence. Combined with a focus on an intuitive, modern user experience (UX) enabled by the creation of Hook & Loop, Infor Xi became the basis of the company's CloudSuite products.

In 2016 the Infor EAP, called Infor Operating Service (Infor OS), went to market in the form of multitenant software as a service (SaaS). It connects business processes, extensibility, and artificial intelligence (AI) services to each other. Infor OS offers a unified UX that enables customers to operate their extensions or build artifacts in a common user interface for Infor as well as non-Infor products. Equally important, Infor OS provides an application development environment (see Figure 1) with low-code and full-code options to its no-code App Designer solution. Infor OS, in conjunction with Infor's Birst acquisition, offers out-of-the box network analytics and business intelligence (BI) capabilities as well as intelligent digital assistants for conversational interfaces, advice, and feedback. It contains powerful workflow capabilities that enable enterprises to automate complex tasks and offers extensive document management capabilities. With continued development of ION, Infor OS provides strong support for the EAP Integrate use case; it also serves as the beginnings for all things automation at Infor and inside the Infor platform. Infor prides itself on providing the important capability of connected intelligence to its users with Infor OS. And finally, Infor OS offers out-of-the-box personalized views, a portal, and enterprise security capabilities for any Extend or Build scenario, thanks to the platform's federated experience.

Figure 1. Infor App Designer: Re-envisioning App Development

Source: Infor

EXPERIENCES

Commercially, Infor delivers Infor OS with the following services:

1. **Data fabric.** Infor offers Infor OS Data Fabric for Infor and non-Infor data, which is key for supporting all three of the EAP's core usage scenarios. Data Fabric storage, the Infor Data Catalog, and Infor's Data Fabric Metagraph together make it easy for enterprises to put all their Infor and non-Infor data in one place. Data Fabric also plays an integral role in addressing integration on a data level for EAP-built software artifacts. Finally, data fabrics are the foundation of AI processes and even deep learning, because they offer Infinite Insights.[3]

2. **Artificial intelligence.** Infor's AI/machine learning (ML) offering enables the automation of horizontal and industry processes all the way from next-best offer through predictive maintenance and automated supply chain. Additionally, Infor OS supports the creation of ML use cases for non-data-scientists, including everything from data collection to publishing a unique API for the specific ML case. Infor also offers a digital assistant that enables conversational UX with chat, voice recognition, and access with smart devices and contains embedded skills across the Infor CloudSuite.

3. **Cloud analytics.** Infor announced the acquisition of Birst in April 2017 and since has made Birst the default analytics product of its applications. From an EAP perspective, this means that Birst needs to support the three core EAP usage scenarios, which it does well. Birst leverages Infor Data Fabric as well as Infor ION for API-level data access. It excels at networked BI powered by data as a service (DaaS), bridging the best parts of centralized and decentralized BI inside an enterprise for superior insights, with connectivity to AI. Birst's adaptive UX helps users access and analyze information when and where they need it.

4. **ION.** ION is the veteran member of the Infor OS suite and, as such, is by far the most mature offering. It enables the integration of Infor and third-party software, including hybrid deployments. It also enables enterprises to create workflows—including third-party solutions—and alerts, connect events with business applications, and easily monitor the entire integration network as well as provide a robust API gateway. Remarkably, the integration can be designed, monitored, and changed without IT involvement, thus strongly enabling Enterprise Acceleration.[4] ION is critical for enterprises looking to support all three core EAP use cases with Infor as their EAP vendor.

5. **App development.** Infor is now launching a new complete no-code extension to its portfolio, elegantly coined App Designer. App Designer allows Infor to provide a full range of app development capabilities for customers and partners. As such, App Designer is crucial for the EAP Build use case. With an intuitive UX and complete prewired integrations with the entire Infor OS suite of services, from workflow to AI, the app development framework is the de facto application creation platform for Infor customers looking to build their own extensions. Available on all relevant platforms, App Designer also supports critical software lifecycle activities such as automatic upgrades.

6. **Federated experience.** Infor's complete federated user experience provides mobile capabilities, enterprise security with integration with common identity providers, a shared UX, an in-context experience, and a flexible application portal architecture enabling each user to define work without changing core business processes. The product is about to recieve a new user interface, further upgrading its usability with the ability to create persona-based condensed work spaces.

7. **Hyperautomation.** Infor's combination of systematic workflow and upcoming robotic process automation (RPA) enables users to progress easily through its automation lifecycle. Infor's EAP exists as a single platform for continuous and easy evolution and value for any organization's automation journey.

Infor OS is built, deployed, and managed in complete multitenancy in the public cloud. This allows Infor customers to embrace the more opportunistic cloud deployment option. Infor also addresses the commercial risk of running in the cloud, because the vendor not only provides consumption/metering monitoring but also shares the commercial risks of cloud usage with its customers. Infor OS is self-regulating for scale and peak consumption across all its connected cloud services.

Overall, Infor has one of the most mature EAPs in the market, a testament to a more-than-10-year research and development (R&D) effort and the early decision to build on the public cloud (AWS, in this case), making Infor the first enterprise resource planning (ERP) product to run on a standard public cloud platform. Its stability and maturity make Infor OS a key contender among the EAPs in the full Constellation Market Overview.

MARKET SEGMENT

Market Definition

Infor OS competes in the EAP market. EAPs are defined as systems that manage, build, operate, integrate, and extend enterprise applications.

Traditionally, enterprise platforms came along with the enterprise applications of their respective vendors: The platform and applications were inextricably linked. In the past decade, however, platform innovation on the one hand and business process uncertainty on the other have forced enterprise application vendors to open up their platforms to their customers.

Scenarios for EAPs include the following three archetypal use cases:

- **Extend.** The requirement for enterprises to extend and/or customize their applications is the oldest usage scenario for EAPs. Changing the UX, adding more fields, changing menus, and so on are staples of the Extend scenario.

- **Integrate.** Because enterprise applications do not stand by themselves, organizations seek better ways to integrate them with the rest of their enterprise automation technologies; EAPs need to facilitate this integration effort.

- **Build.** The most recent usage scenario for EAPs is the Build scenario, in which enterprises build their own stand-alone applications on the EAP vendor's platform. This scenario has been triggered largely by business best-practice uncertainty that rules the current phase of enterprise applications (more on that later).

Another defining market characteristic is the availability of EAPs in the public cloud. The public cloud has changed enterprise IT as no previous technology trend has done, enabling the pay-as-you-go consumption-based licensing business model as well as exceptional resource elasticity.

All vendors in the full Constellation Market Overview support the public cloud. However, data residency and performance demands as well as traditional IT operating models often require organizations to run their enterprise applications on-premises. Most of the vendors in the Market Overview also support on-premises deployment of their applications, adding increased capabilities to the enterprise platform (the lone exceptions being the "born in the cloud" vendors NetSuite, Salesforce, and Workday).

Last, some of the vendors in the full Constellation Market Overview—such as Microsoft, Oracle, and Salesforce—provide offerings in both the SaaS and platform-as-a-service (PaaS) areas, but we consider only the capabilities of their EAPs in the overview, not their separately offered PaaS offerings. In the overall market, however, these vendors' PaaS offerings are the key competitors of EAPs, competing especially with those vendors that do not offer support for the archetypal Build use case.

MARKET TRENDS

Eight prominent market trends are driving enterprise software/SaaS vendors to offer an EAP (see Figure 2).

EAPs Become Revenue Products

ERP vendors, like all other software and SaaS vendors, are under pressure to increase the returns on their R&D efforts. Individual developer productivity already has been maximized, as have nearshore and offshore options for the most part, so efforts are focused on increasing productivity both in-house and for customers.

Using EAP platforms is the right strategy for boosting overall developer productivity in the push to create next-generation applications. Because SaaS vendors are able to create EAP solutions that fit their domain space, they know their inherent application architecture and can increase productivity for their in-house or contracted developers. When offered as products, EAP-built solutions can help customers and partners complete and complement existing SaaS offerings of the ERP vendor. This proves very valuable when SaaS vendors are not able to offer complete wall-to-wall solutions but need partners and customers to fill in some functional gaps. Historically, EAP offerings have been a giveaway and not on the price list of ERP vendors; that is changing now, as EAPs become a revenue opportunity.

Figure 2. Eight Market Trends Defining the EAP Market

EAPs become revenue products	EAPs cope with best-practice uncertainty	The capex-to-opex transition matters	Enterprise Acceleration Is the true north
An autonomous stack Is needed	AI/ML are the future of enterprise software	Low code/no code is a must-have	EAPs power next-gen applications
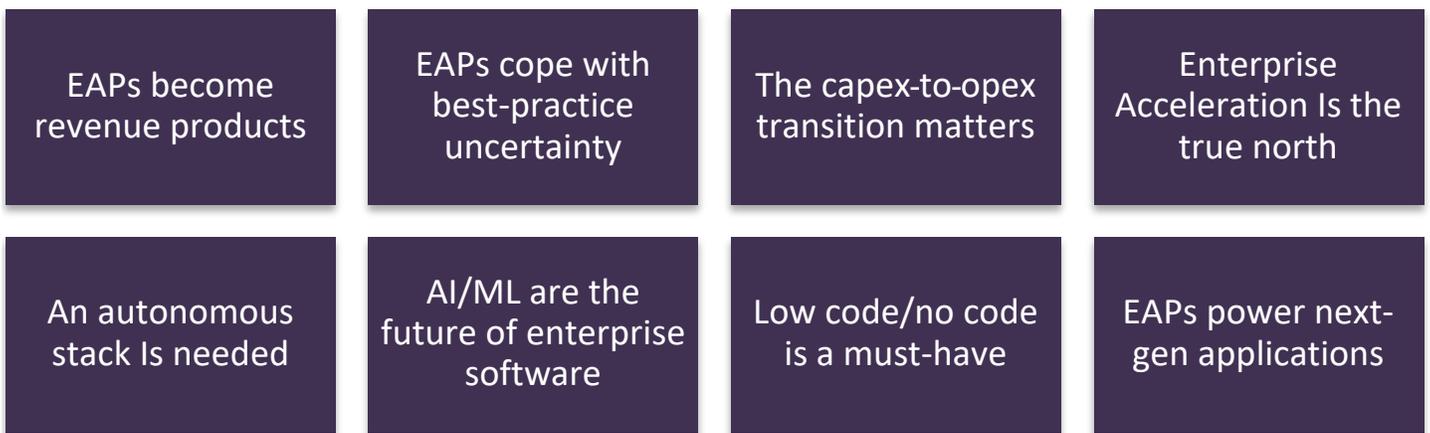
Source: Constellation Research

CxOs know that the enterprise software vendor with the better return on R&D will be the winner in their market and therefore the right partner for their enterprise. The availability and maturity of an EAP offering are leading indicators of how well a vendor is positioned for the return on its R&D.

EAPs Cope With Best-Practice Uncertainty

For the first time in the history of enterprise software, technology exceeds the software's computational requirements and enables new processes and best practices. This creates a best-practice void, which means that enterprises do not know what the real best practices are and need to experiment and try new best practices. Effectively, this is a repeat of the mainframe era of the 1950s: The hardware was there, but the software had to be written. Enterprises that want to be disruptors and winners in digital transformation must be able to build software for experimental and disruptive purposes.

Naturally, an enterprise does not want to share with its suppliers any best-practice innovations that have market disruption potential—particularly not with its enterprise software supplier, whose business model would compel it to package and sell that innovation to as many other enterprises as possible. On the other hand, enterprise software vendors cannot build for every experiment their customers want to conduct.

But the need for EAPs goes further than developing software as a strategic tool. It is clear that software vendors cannot build all the automation that enterprises need—even if that automation is standardized. Deep localization and verticalization, for example, are areas in which EAPs enable enterprises to pursue their own automation destiny.

As a result, enterprises use EAPs to build additional capabilities they deem important to their success (and that they cannot get or do not want to get from their enterprise software supplier); this enables software vendors to provide a platform for experimentation and creation of custom business processes.

The Capex and Opex Transition Matters

Software development is capital-intensive and requires vendors to make capital expenditure (capex) investments. The same is true for buying hardware and operating data centers. Because reliable public cloud computing infrastructure has been available for the last few years, enterprise software vendors do not get a good return on their capital by running their own data centers. As then–Infor CEO Charles Phillips put it in 2014, "Friends don't let friends build data centers.[5]"

In addition to the pure capex, running and operating data centers also present a talent and personnel cost for enterprise software vendors, with talent and budget that could be allocated to software and product development instead of being spent monitoring and upgrading servers. Much as how enterprises ran their own power plants about 100 years ago and then gradually moved to using public utilities, they will move to public cloud vendors for their computing needs. And enterprise software vendors are going to anticipate that trend by closing their data centers and moving to public cloud infrastructures.

Constellation estimates that an enterprise software vendor that moves to a public-cloud-based operational expenditure (opex) model can invest between 15% and 20% more in its products. Compounded over a few years, this can result in functional leadership by a public-cloud-based vendor of 50% to 60% over a vendor that still operates its own data centers.

This trend makes public cloud support a key factor for CxOs selecting the right enterprise software products. Enterprise application vendors that come from an on-premises history have to make sure their products, including EAPs, run in the public cloud. The requisite innovation starts with the platform, and this makes public cloud platforms a requirement for EAPs.

Enterprise Acceleration Through Solution Completeness

For far too long, enterprises have operated with incomplete and fragmented enterprise software. Workarounds, often manually operated, are still common. In an era when labor costs are quickly rising

and talent is getting scarcer and scarcer, a solution's automation completeness, ideally spanning the entire enterprise, is crucial for success.

Experienced CxOs know they cannot expect solution completeness from their enterprise software vendor(s). There is no guarantee that this will change even in the near future; although some vendors offer roadmaps, these roadmaps may not align with the automation needs and current state of business best-practice innovation and competition each enterprise experiences.

The solution to this challenge is an EAP platform provided by the enterprise software vendor that gives enterprises the strategic option to strive for solution completeness, even if their enterprise software vendor does not provide it.

The Need for an Autonomous Stack

Traditional enterprise software functions with an operator mindset: The user has to show up for business to happen. If the user does not show up, nothing or very little happens. With economies running out of capacity and talent, it is more and more important for enterprise vendors' software to become self-driving and autonomous.

EAPs play a key role in enabling enterprises to operate more autonomously because they form the basis for the creation, validation, and automation of the rules and algorithms that power the best practices enabled by Infinite Computing.[6]

AI, ML, and Deep Learning Networks Are Key to the Future of Enterprise Software

The future of enterprise automation is in … automation. AI and ML give enterprises a new option for automating tasks with software.

The first area of innovation involves humanizing the interaction with enterprise software: Instead of typing on a QWERTY keyboard and using a mouse, users can employ natural speech and touch to interact

with software. This is a much more human-suited way to interact with software than using the relatively primitive input tools of the past. With humans effectively acting as autonomous 3D processors, the next revolution will involve understanding data in a 3D way, using augmented, mixed, and digital reality.

An even larger impact is occurring on the automation side. For the first time, the digital trail (and digital exhaust) of an enterprise can be used to automate processes—even without human involvement. And these processes can continuously adapt, morph, and reinvent themselves. The capability comes from deep-learning networks (DLNs) that continuously look at the digital trail and automate processes autonomously.

Both major trends—the humanization of software interaction and the rise of DLNs—are powered by the public cloud. Vendors adapting to public cloud infrastructure and opting to automate these processes in an enterprise-friendly way in an EAP platform will be the winners as enterprises and vendors transition to the public cloud.

Low Code/No Code Is a Must-Have

Invariably, enterprise use of an EAP requires code automation. Traditional avenues for creating the code—i.e., with developers—have been more or less depleted: The world does not have enough developers to build all the code it needs to survive in the era of digital transformation.

Additionally, vendors do not want their enterprise customers to embark on overly large, traditional software projects, because they compete with the vendor for wallet share. In addition, the overall risk of going live can be affected by the ups and downs of the software development lifecycle of these projects. Therefore, it is crucial for enterprise software vendors to enable their customers to build their next-generation applications with low-code/no-code options.

The result is that enterprises in general, and more specifically reasonably technology-savvy enterprise end users, can be put in charge of their own automation destiny. Practically, this means that the EAPs are being employed by business users for their specific automation needs across an entire enterprise.

Figure 3. The Seven Universal Next-Gen Apps Use Cases
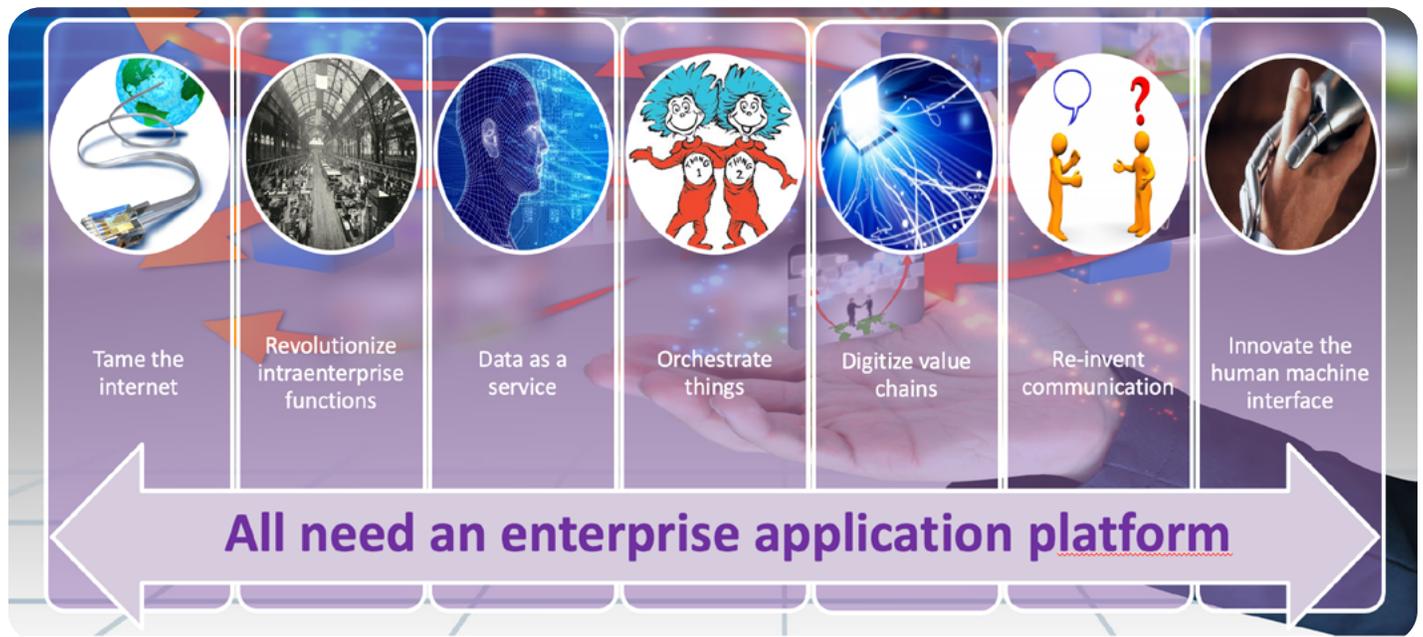
Source: Constellation Research

EAPs Power Next-Gen Applications

New technology capabilities create new automation needs and opportunities, and enterprises must leverage those opportunities to win markets or at least remain relevant. They cannot wait for enterprise software vendors to build solutions for them in this era of digital disruption and transformation, due to the uncertainty about business best practices.

At the same time, it is clear that these next-generation applications (see Figure 3) have to be operated in connection and cooperation with traditional enterprise software applications—the systems of record. Therefore, it is crucial that enterprise software vendors give their customers the opportunity to build these next-generation applications in parallel with software that supports their existing needs, further reinforcing the need for an EAP.

KEY CAPABILITIES

This section describes the most important capabilities of the Infor EAP, offered through Infor OS.

An Early Start in EAP Means Maturity and Leadership Today

Infor was the first ERP vendor to move to a public cloud platform with AWS. As a consequence, it had to be the first vendor required to offer platforms and tools that would enable customers to manage their ERP applications in the cloud, with no physical access to their machines, which led to the creation of Infor OS.

Conveniently, Infor was able to leverage previous investments in platform capabilities. This gave Infor OS a rich start from its very beginning. Remarkably, Infor also has been able to use the same platform for its customers that decided to deploy Infor ERP applications on-premises. This common code line for mostly identical functionality has enabled Infor to operate its ERP applications on a next-generation computing platform.

Here is the timeline of Infor OS:

- February 2011: Infor releases and operates integration (with Infor ION), security, and portal capabilities.

- Spring 2012: Workflow and event management are released into general availability.

- Spring 2013: Infor makes collaboration capabilities available with Infor Ming.le and provides a document object graph as a precursor of document management.

- Winter 2015: Infor releases Document Management and its API Gateway.

- November 2016: Infor bundles its platform capabilities and brands them as Infor Operating Services (Infor OS).

- Summer 2017: Infor releases home page capabilities, mobile capabilities, and the Infor Mongoose (now App Designer) PaaS offering.

- Summer 2018: Infor releases Infor Data Fabric and moves into AI with Infor Digital Assistant.

- Summer 2019: Infor Go is released; the AI offerings are extended with PaaS capabilities with its ML module; and Infor ships governance, risk, and compliance (GRC) functionality and planning capabilities with Infor Cloud d/EPM.

- Summer 2020: Infor ships AI apps and integration into Microsoft Teams and delivers output management within its document management module.

- Summer 2022: Infor unveils its proprietary process intelligence capabilities, with planned integration with ML and automation capabilities.

Figure 4. Infor's New App Designer (No-Code)
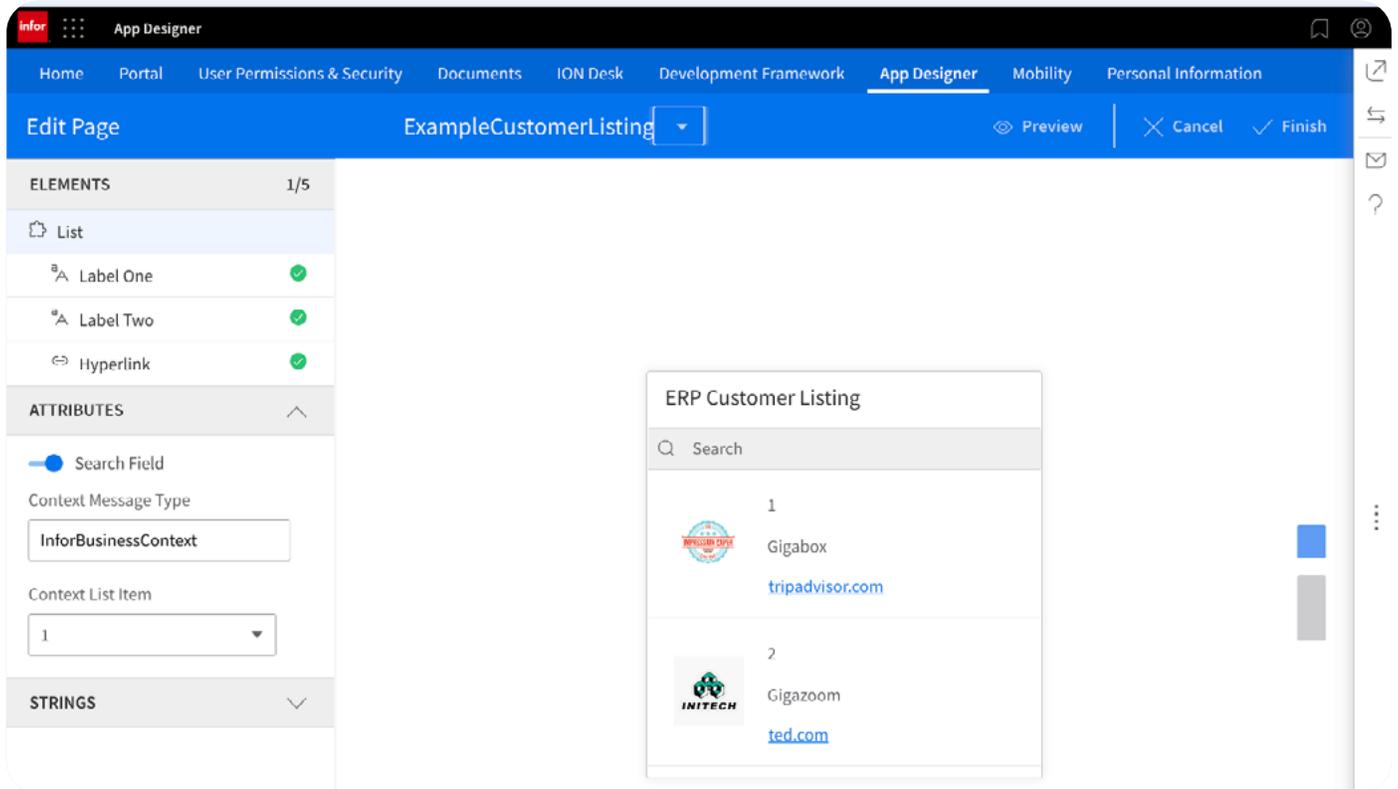
Source: Constellation Research

- Fall 2022: Infor plans to release its low-code App Designer (see Figure 4) and homegrown RPA solution to round out its hyperautomation stack.

All in all, Infor is one of the very few EAPs included in the full Constellation Market Overview that has a more-than-10-year history of shipping EAP capabilities to customers. That early start has helped Infor build a functionally rich, coherent, and ready-for-prime-time EAP.

Infor OS Has Momentum

The early start of Infor OS has given the vendor a strong position when it comes to adoption of the platform in its customer base. Along with that go heavy usage and the expertise and confidence among the vendor, customers, and prospects that Infor OS can handle advanced requirements (see Figure 5).

Infor OS runs in nine AWS regions as well as AWS GovCloud. This is the broadest adoption of AWS by any EAP provider as of spring 2022. Support for public cloud regions is important for EAP customers, because it enables customers to comply with data residency and privacy rules and provides performance advantages for their ERP deployments.

Figure 5. Infor Technology Momentum (as of July 2022)

Platform Technology

Infor OS Momentum

Building on Infor Platform Technologies is the long-term growth engine for realizing the full value of our customer & partner ecosystem.

>5.5k
Production Tenants
(does not include customer dev/test environments: >12k total active)

2bn
APIs per month

1.7bn+
Events (msg) per month

7k
Community Members
Largest at Infor

>170k
Active Connections
(iPaaS)

700k+
Logins (unique) per day on the platform

7bn+
Data objects

14.2M
Big data queries per month

874tb+
Data Storage

Source: Constellation Research

Healthcare customers benefit because Infor OS is HIPAA-certified, a must-have in the industry and still not something all of Infor's competitors have achieved.

Finally, Infor OS's ability to deploy either as a cloud-based solution or as an on-premises offering, as well as a combination of both, makes it one of the broadest choices for ERP deployment offered by ERP vendors.

Its usage numbers alone demonstrate Infor OS qualities:

- **Broad customer adoption.** Infor OS has more than 12,000 customer tenants, and those customers log into Infor OS on average more than 700,000 unique times per day.

- **Massive integration experience.** More than 60,000 applications are connected to the Infor EAP, a big proof point for the generic EAP integration scenario.

- **Scalable event architecture.** With more than 1.7 billion events per month executed by Infor OS, the product has proved itself as a scalable event architecture.

- **High-performance API management.** Similarly, with more than 2 billion API calls per month having gone through Infor OS, critical API scalability is now a nonissue for CxOs.

- **A scalable data fabric.** With more than 7 billion data objects in Infor Data Fabric and more than 14.2 million big data queries run against it, Infor has proven its big data platform and infrastructure.

- **A high-performance application architecture.** Customers have loaded more than 200 billion application screens with Infor OS, showing that the Infor application architecture is both scalable and dependable.

Infor Delivers a Proven Next-Generation Application Architecture

The success of EAPs stands and falls with the successful operation of the business applications they power. With that being a given, the next question is how well an EAP can integrate with relevant third-party systems, out of the box and with the integration work undertaken by the customer. Next comes

the ability to extend the applications, ideally avoiding customization that hinders customers from upgrading. And last but not least, an EAP needs to make it possible for customers to build separate applications as needed. In short, after successfully operating its main load, an EAP needs to support the three generic EAP use cases: Integrate, Extend, and Build.

Infor OS has shown that it can successfully run applications at scale, which is proven by its customer references as well as its track record of scalability, as mentioned above. It addresses the three generic EAP use cases as follows (see Figure 6):

1. **Integrate with ION.** ION is the oldest module of Infor OS, which makes it both proven and able to give enterprises a lot of integration choices that have been built over time. The choice of the Infor Data Fabric as the integration data layer was a smart architecture decision that has paid off for Infor.[7]

2. **Extend on any level of the stack.** Infor OS enables extension on various levels of the stack, starting of course with Data Fabric; the addition of ION APIs; and then the adoption of widgets for apps, AI, BI, documents, and tasks as well as the composition of the application screens to be operated in web applications, the Infor Portal, and/or mobile applications.

Figure 6. Infor Platform Capabilities Enabled by Infor OS
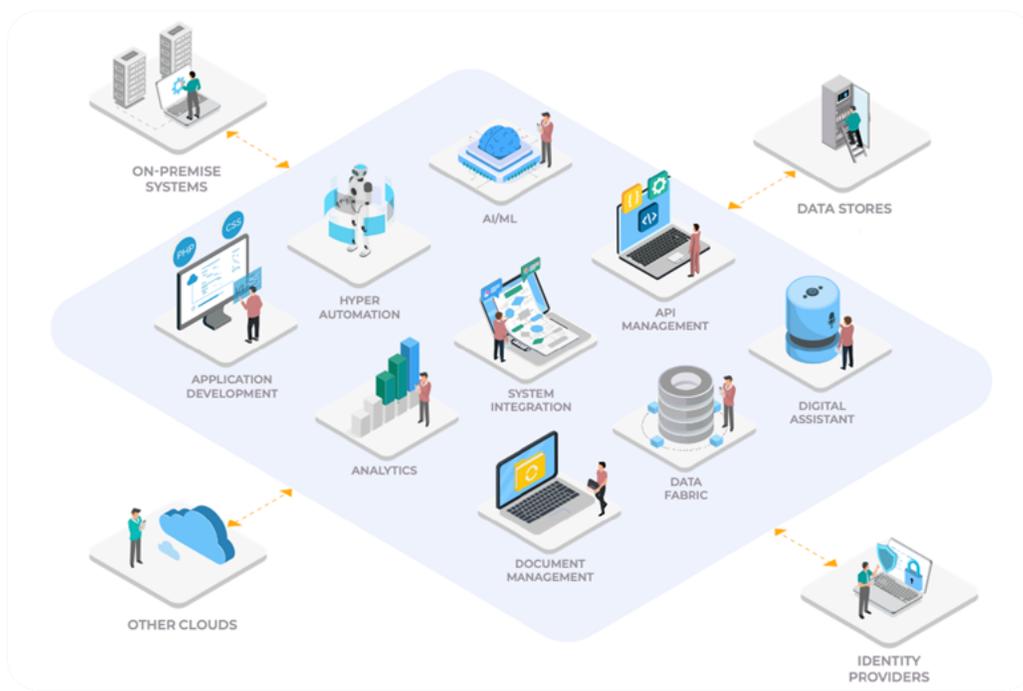
Source: Infor

3. **Build applications with Infor App Designer.** App Designer, the latest Infor OS no-code solution to round out the PaaS platform, enables enterprises to build their own next-gen solutions.

## Customers Gain a Service Architecture for Next-Generation Applications[8]

Infor OS provides an efficient way to enable key enterprise use cases, made possible by a service architecture preconfigured for these use cases. Infor is leveraging the enterprise application vendor's advantage over the pure PaaS players for platforms: the deep understanding of enterprise demands when it comes to the automation of their key processes through next-generation applications.

Infor and custom EAP applications are always built in a combination of API calls through the Infor API Gateway and the usage of data through ION, supported by an enterprise security framework. These three modules are key for the operation of Infor OS and the formation of Infor business applications (see Figure 7).

1. **Infor ION for all things integration.** Infor ION is the data management and integration layer for Infor applications and Infor OS–built applications. The choice of running on data fabric, in this case the Infor Data Fabric, was a very good early call for integrating all relevant data. ION looks at both Infor Data Fabric and Infor GRC, making it the one-stop place inside Infor OS for compliant data access. Infor Data Fabric not only is the home for data extracted with ETL from third-party apps but also adds Infor Birst and Infor d/EPM data, practically creating one data plane for Infor applications as well as EAP-built applications. This now includes extensive scripting capabilities and real-time capabilities.

2. **Infor API Gateway for all things functionality.** The Infor API Gateway operates on top of Infor ION for the data side and is enriched by dedicated API repositories, supporting Infor's Enterprise UX, Document Management, Digital Assistant, Applications Development, and Mobility.

3. **Infor Enterprise Security for governing it all.** Both Infor ION and Infor API Gateway and their interlocking modules are governed by a single security service, Infor Enterprise Security. Consistency and a single control pane are crucial for enterprises that are challenged by threats more than ever.

Figure 7. The Infor OS Service Architecture
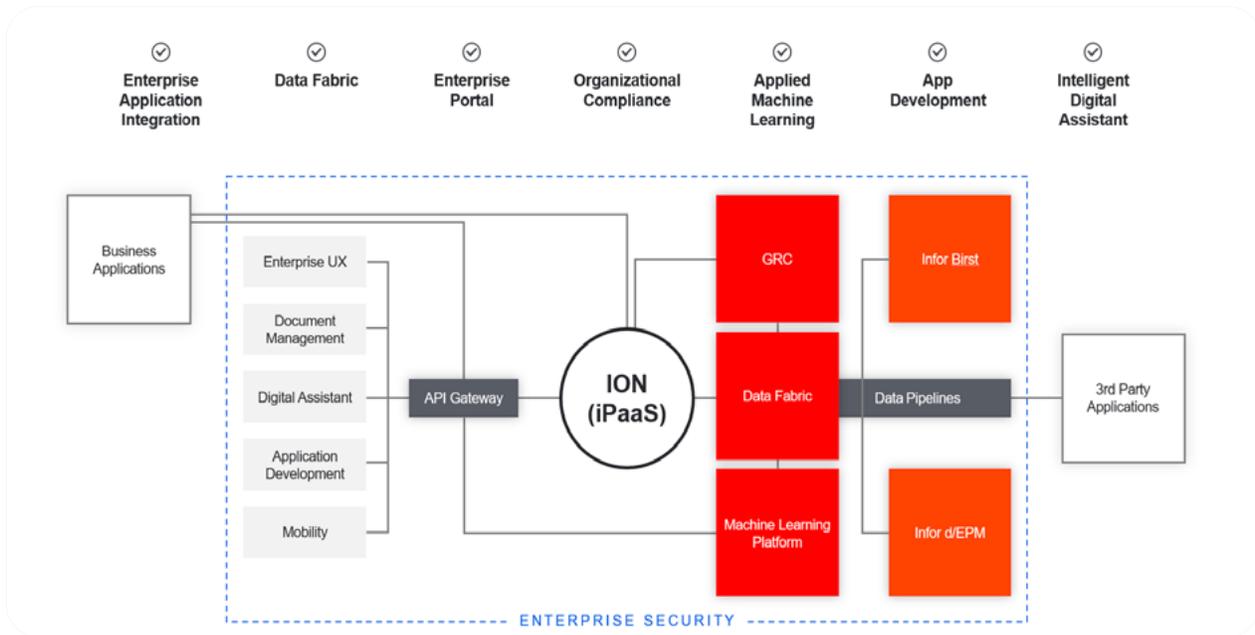
Infor enables seven key use cases by activating different modules of the architecture:

1. **Enterprise application integration simplified.** Infor OS enables the key EAP Integration use case with Infor ION, the Infor API Gateway, and the Enterprise UX to visualize the integration processes and status.

2. **Data fabric easily enabled.** To enable a data fabric capability with Infor OS, users can simply combine Infor Data Fabric (including a data catalog) with Infor ION, the Infor API Gateway, and the Infor ETL capabilities (see Figure 8).

3. **Enterprise portal support streamlined.** To create and extend an enterprise portal, users can combine the document management, mobility, and Enterprise UX offerings of Infor OS into a portal solution.

4. **Organizational compliance built in.** To implement organizational compliance for data and functionality, Infor OS users can add Infor GRC to the trio of Infor Data Fabric, Infor ION, and the Infor API Gateway.

Figure 8. Infor's Data Architecture
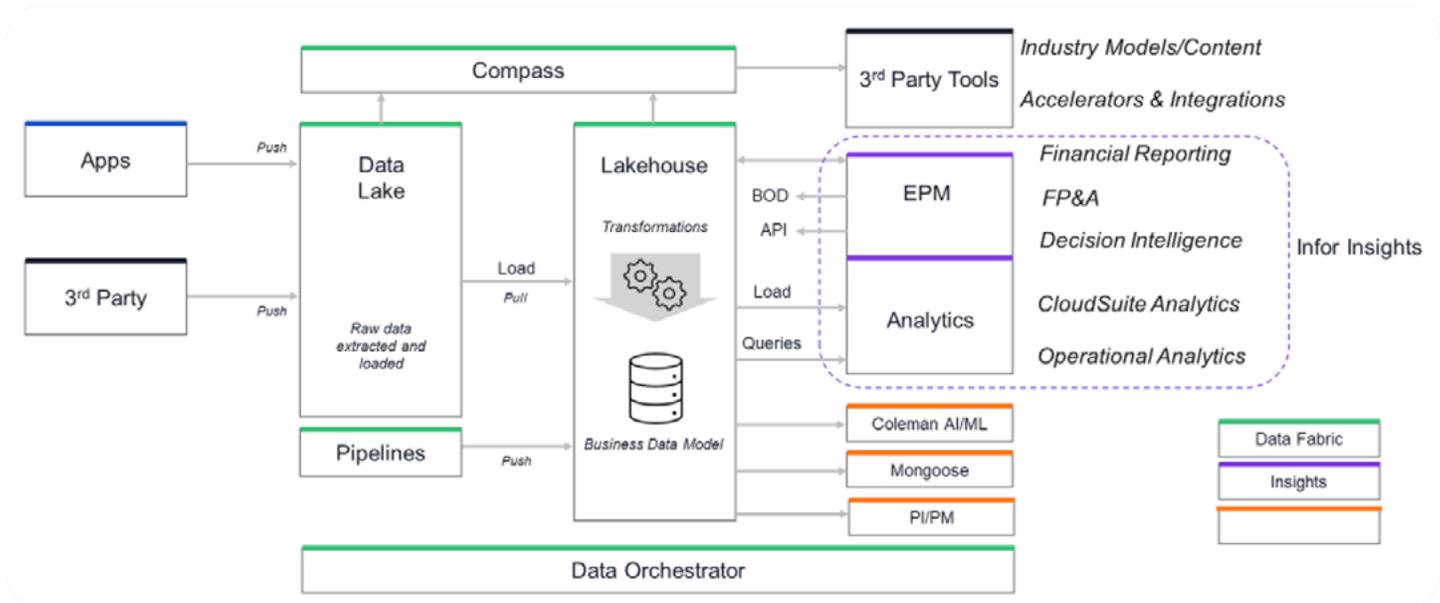
5. **Applied machine learning readily available.** To enable ML scenarios, Infor OS users bring together Infor's ML platform with the Infor API Gateway, which leverages Infor ION and Infor Data Fabric to provide the necessary data for the ML solution.

6. **Application development made possible.** Users who want to support the key EAP Build scenario simply bring together the Infor application development tools and Infor Enterprise UX in the Infor API Gateway.

7. **Intelligent assistance made easy.** To create and extend intelligent assistants, Infor OS users simply employ the Infor API Gateway to bring together the Infor Digital Assistant and Enterprise UX.

Almost needless to mention, but obvious: All seven use cases are controlled and secured by Infor Enterprise Security.

Data Is at the Core of Infor OS

Data remains at the core of business applications, so it has to be at the core of an EAP. Enterprises need and want to keep records of their business activity but also of external data sources that matter to the enterprise's value creation.

In the era of Infinite Computing,[9] the right strategy is to use the Infinite Insights[10] capability this era provides, which practically means using a data fabric. This enables the enterprise to store any information in a cost-efficient way and, even more important, to analyze any kind of information it may want to derive from the data fabric.

Infor has been early not only with its EAP solution but also in understanding that data is at the core of an EAP and has offered Infor Data Fabric since the inception of Infor OS (see Figure 9).

More specifically, Infor is expanding the data-related capabilities in its EAP with the following functionalities:

- **Ingest and control streaming data.** Streaming data has become relevant for enterprises, and Infor EAP now supports APIs for both ingestion and streaming of data. This allows for the programmatic control of the streaming data, which simply cannot be managed manually with efficiency.

- **Make easier sense of the data.** With Data Fabric Metagraph, Infor has provided an easy-to-use data modeler, enabling users to see data relationships in the data fabric and to explore and create relationships.

Figure 9. Infor OS Depth of Data
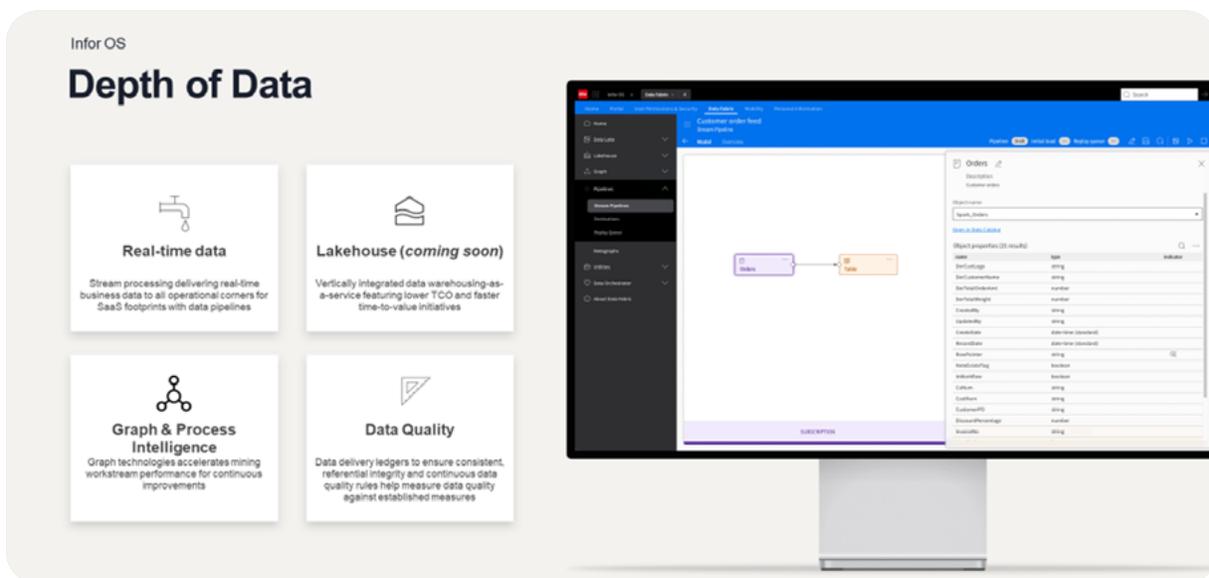
Source: Infor

- **Enable data warehouse as a service.** Infor will ship its data-warehouse-as-a-service (DWaaS) offering soon, reflecting the enterprise's demand to use a familiar and proven technology approach in the cloud. Data pipelines are the enablers for feeding data to the data warehouse, and Infor has added that capability to its EAP.

- **Explore data with ease.** Infor OS provides a framework to make the work of data scientists and data modelers easier. This enables them to understand data better and powers data modeling for ML and analytics purposes.

- **Power better data quality.** Infor OS supports data validation and data format enforcement in the data ingestion process as part of the data integration process, thus elevating data quality right at the time of data import.

ANALYSIS AND OBSERVATIONS

For CxOs making decisions regarding their enterprise applications, Infor OS is a strong differentiator for choosing Infor enterprise applications. Not only was Infor the first ERP vendor to offer its product in the cloud but, with Infor OS, it was also early at providing an EAP. Being early helps in software, and Infor has one of the most functionally rich and mature EAPs in the market.

Strengths

Infor OS possesses the following strengths compared with other offerings in this market space
(see Figure 10):

- **Being first in cloud with AWS.** Infor was the first vendor in the full Constellation Market Overview that moved its EAP capabilities to the public cloud. That early move enabled Infor to have one of the most proven and functional EAPs in the cloud, especially compared with competitors that started offering cloud platform capabilities only in the last two or three years.

- **Choice of cloud and on-premises.** On-premises execution of enterprise processes matters to enterprises, primarily due to performance reasons, lack of in-country data centers, data residency

requirements, and preservation of the status quo. Infor is one of the few vendors offering a choice between on-premises and cloud deployment of its products, thus giving CxOs key strategic choices.

- **Infor OS vision and delivery.** Infor started right not only from a vision perspective—with its focus on integration, data fabric, low code, and AI—but also by delivering a functionally rich and robust EAP.

- **Being early with data fabric and AI.** The early move to the cloud also enabled Infor's strong data fabric capabilities. And data is the underlying enabler for AI, so early data fabric capabilities and uptake enabled early entry into the AI market with Coleman and, consequently, early customer success.

- **Enabling composable apps on microservices built with low code.** Enabling composable apps powered by microservices and enabled by low code is the right strategy for putting enterprise and business users in charge of their automation destiny. It acknowledges the need of enterprises and business users to build their own applications to address new best-practice needs.

Weaknesses

Infor OS possesses the following weaknesses compared with other offerings in this market space:

- **Lack of reputation as a differentiator.** In general, Infor suffers from being a less-known ERP vendor. Implicitly this means that Infor OS, as its EAP offering, is not yet widely known, which can limit usage and customer stories in the market, something the company is planning to address.

- **Slow Birst integration, insight to action.** Infor has been slow at enabling insight to action. The Birst acquisition has enabled it to start catching up, although insight to action remains elusive (still) to all EAP vendors. This is an opportunity for Infor to make further strides in the near future.

- **Slow progress funding for platform while Infor focuses on finance/HR.** Infor has recently undertaken a complete rewrite of its core ERP applications in finance and HR; with the strong focus on industry solutions, Infor OS sometimes takes a back seat.

Figure 10. Infor OS Strengths and Weaknesses

STRENGTHS	WEAKNESSES
· Being first in cloud with AWS · Choice of cloud and/or on-premises · Infor OS vision and delivery · Being early with data fabric and AI · Enabling composable apps on microservices built with low code	· Lack of reputation as a differentiator · Slow Birst integration, insight to action · Slow progress at funding for platform while all eyes are on finance/HR rewrites · Huge demand in installed base and limited resources to respond

Source: Constellation Research

- **Huge demand in installed base; limited resources.** Every Infor customer is an Infor OS customer, and enterprises need to learn how to use Infor OS. Resource availability to train and coach customers is a critical aspect of Infor OS success.

RECOMMENDATIONS

Constellation recommends the following for CxOs looking at Infor OS:

- **Enable enterprise acceleration.** Enterprises need to move faster than ever, and IT/computing infrastructures cannot continue to shackle agility as they have in the past. Therefore, CxOs should look to EAPs that enable their enterprise to integrate and extend their automation portfolio and build the relevant applications needed to run their enterprise in the digital transformation era.

- **Select vendors with an eye on key capabilities, roadmaps, and business user enablement.** EAP capabilities are becoming a larger part of ERP and business software selection. A lack of EAP capabilities can severely hamper enterprise success, so CxOs need to consider roadmap items and delivery times. Finally, IT cannot build it all: Constellation considers it a showstopper when enterprise software platforms do not enable business-user app development with low-code methods.

- **Pick your next enterprise software platform carefully, and make sure EAP capabilities are prioritized, with a focus on the Build use case.** Traditionally, standard software was all about fit, and that has served enterprises well because best practices were delivered with standard software. In the era of business best-practice uncertainty, though, the vendor cannot ship products with all best practices in place. The only option an enterprise has when it needs automation that its enterprise software vendor cannot provide is to build it in-house. Therefore, the Build use case matters as a key EAP capability for Enterprise Acceleration in the era of business best-practice uncertainty.

- **Exploit Infor OS at its fullest as an Infor customer.** When paying for enterprise software, it makes sense to exploit the software to its fullest, taking advantage of what has been licensed from both a functionality and a commercial perspective. Having licenses for an EAP such as Infor OS and not using it to its fullest is not the best strategy for practicing Enterprise Acceleration.

- **As a prospect, realize the relative competitive strength of Infor OS.** When evaluating Infor, it is key to include EAP capabilities in the selection process. Infor does well for EAP capabilities in terms of functionality, adoption, and robustness. And this is what CxOs need from their EAP: a proven, scalable platform to implement the key three EAP capabilities.

- **Take a stance on commercial prudence.** Regardless of the vendor, enterprises need to make sure they obtain the value they seek. For Infor OS, CxOs must pay attention to ensure that subscription costs provide their enterprise with an attractive total cost of ownership (TCO). As with all other services-related offerings, prices will fluctuate, need to be contractually agreed upon as long as desired, and must be constantly monitored to avoid negative commercial surprises.

RELATED RESEARCH

For the Market Overview, see: Holger Mueller, "Next-Gen Computing: The Enterprise Computing Model for the 2020s," Constellation Research, September 14, 2018. *https://www.constellationr.com/research/next-gen-computing-enterprise-computing-model-2020s*

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For the Offering Overview of Microsoft Azure Stack, see: Holger Mueller, "Microsoft Azure Stack Emerges as Key Next-Gen Computing Option," Constellation Research, February 4, 2019. *https://www.constellationr.com/research/microsoft-azure-stack-emerges-key-next-gen-computing-option*

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For a Constellation ShortList™ on IaaS vendors, see: Holger Mueller, "Constellation ShortList Global IaaS for Next-Gen Applications," Constellation Research, February 20, 2018. *https://www.constellationr.com/research/constellation-shortlist-global-iaas-next-gen-applications-2*

For more details on Infinite Computing, see Holger Mueller, "The Era of Infinite Computing Triggers Next-Generation Applications," June 1, 2018. *https://www.constellationr.com/research/era-infinite-computing-triggers-next-generation-applications*

For the people-leader perspective on the skills shortage and the need for Enterprise Acceleration, see: Holger Mueller, "Why People Leaders Must Embrace Enterprise Acceleration," Constellation Research, July 3, 2018. *https://www.constellationr.com/research/why-people-leaders-must-embrace-enterprise-acceleration*

For more best-practice considerations for PaaS offerings, see: Holger Mueller, "As PaaS Turns Strategic, So Do Implementation Considerations," Constellation Research, May 9, 2018. *https://www.constellationr.com/research/paas-turns-strategic-so-do-implementation-considerations*

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For a Constellation ShortList on PaaS vendors, see: Holger Mueller, "Constellation ShortList PaaS Tool Suites for Next-Gen Apps," Constellation Research, February 13, 2018. *https://www.constellationr.com/research/constellation-shortlist-paas-tool-suites-next-gen-apps-1*

Also see: Holger Mueller, "Constellation ShortList PaaS Suites for Next-Gen Apps," February 27, 2018. *https://www.constellationr.com/research/constellation-shortlist-paas-suites-next-gen-apps-1*

For additional IaaS and PaaS selection criteria, see: R "Ray" Wang and Holger Mueller, "Key Questions for Every Public Cloud IaaS/PaaS Decision Matrix," Constellation Research, January 24, 2018. *https://www.constellationr.com/research/key-questions-every-public-cloud-iaaspaas-decision-matrix*

For next-generation databases, see: Holger Mueller, "Constellation ShortList Next-Gen Databases—RDBMS for On-Premises," Constellation Research, February 27, 2019. *https://www.constellationr.com/research/constellation-shortlist-next-gen-databases-rdbms-premises-1*

For an example of digital transformation, see: Holger Mueller, "Lufthansa Digitally Transforms the Workplace for Flight Managers," Constellation Research, February 27, 2018. *https://www.constellationr.com/research/lufthansa-digitally-transforms-workplace-flight-managers*

ENDNOTES

[1]For the Constellation Market Overview, see: Holger Mueller, "Platforms Rule Enterprise Application Success in the 2020s," February 26, 2021, *https://www.constellationr.com/research/platforms-rule-enterprise-application-success-2020s*

[2]For the Constellation Shortlist™ on EAP platform vendors, see: Holger Mueller, "Constellation ShortList Enterprise Application Platforms," February 9, 2022. *https://www.constellationr.com/research/constellation-shortlist-enterprise-application-platforms*

[3]For more on Infinite Computing, see: Holger Mueller, "Infinite Platforms Power Enterprise Acceleration," Constellation Research, October 11, 2019. *https://www.constellationr.com/research/infinite-platforms-power-enterprise-acceleration*

[4]The author uses *Enterprise Acceleration* to describe the need for enterprises to move faster and become more agile. Read more on Enterprise Acceleration here: Holger Mueller, "Why the C-Suite Must Embrace Enterprise Acceleration," May 2, 2019. *https://www.constellationr.com/research/why-c-suite-must-embrace-enterprise-acceleration*

[5]For more on the statement at an AWS event in 2014, see: Holger Mueller, "Event Report – AWS Summit in SFO - AWS keeps doing what it has been working for 8 years...," March 26, 2014. *https://www.constellationr.com/blog-news/event-report-aws-summit-sfo-aws-keeps-doing-what-it-has-been-working-8-years*

[6]For more details on Infinite Computing, see Holger Mueller, "The Era of Infinite Computing Triggers Next-Generation Applications," June 1, 2018. *https://www.constellationr.com/research/era-infinite-computing-triggers-next-generation-applications*

[7]For more on how data lakes can be the integration tool of choice, powering the era of Infinite Insights, see Holger Mueller, "Infinite Insights Are the Architecture Imperative for Enterprise Acceleration," Constellation Research, July 14, 2020. *https://www.constellationr.com/research/infinite-insights-are-architecture-imperative-enterprise-acceleration*

NB: *Infinite Insights* is the author's term for describing the endless insights enabled by the combination of inexpensive storage and the ability to store information without knowing what queries are going to be run against the data.

[8]The author uses the term *next-generation applications* to describe applications that use a combination of AI, big data, the cloud, and build applications across seven distinct use cases. Find more on next-generation applications here: Holger Mueller, "The Era of Infinite Computing Triggers Next-Generation Applications," June 1, 2018. *https://www.constellationr.com/research/era-infinite-computing-triggers-next-generation-applications*

[9]See endnote 3 above for more on Infinite Computing.

[10]Infinite Insights is the second layer in the Infinite Computing architecture. Find more here: Holger Mueller, "Infinite Insights Are the Architecture Imperative for Enterprise Acceleration," July 14, 2020. *https://www.constellationr.com/research/infinite-insights-are-architecture-imperative-enterprise-acceleration*

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