



Dependable & Controlled Access to *Cloud ERP*

The typical offering has many weaknesses

Introduction

"*Cloud ERP*" . . . first let's drop the word *Cloud* from the name. It is only a marketing term that is designed to over-simplify a topic that absolutely must be properly understood if one wishes to make good decisions about ERP. The same is true for the term *Software as a Service* (SAAS), as it implies one can sit back and be served. These misleading terms will not be used from this point forward in this paper.

ERP accessed through the Internet is marketed as a turnkey product that makes life easy for ERP users. In one sense this can be true—as it can help relieve the ERP buyer from having to manage ERP hardware and certain aspects of database and ERP software. Other claims about benefits of remotely delivered ERP are at least overstated and more likely wildly inaccurate. Further, the commercial deal is nearly always presented in simple terms with the implication that the details are not important—or worse, the details are fixed and the seller won't negotiate. All of this will be examined in this document. Specific areas developed are:

- ERP access options
 - ERP architecture options
 - Who manages ERP
 - ERP access payment options
- Cost control for subscription access.
- Commercial terms important to achieve when the buyer depends on another party for accessing critical business systems.
- Implementing remotely accessed ERP



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What is ERP?

Before diving into ERP access options, it's good to briefly establish a description of ERP. ERP components are broken into three groups.

ERP Software: This includes the ERP application with appropriate functionality, ongoing patches and updates, and support for the ERP application.

Other Software: Other software and support involved to deliver ERP—which includes database software and tools for development of functionality, workflows, and metrics. There may be more depending on the ERP setting, such as software for remote access, server virtualization, and performance monitoring.

Physical Infrastructure: All IT hardware, infrastructure/support and Internet access necessary to run the ERP application.

ERP Access Options

There are a few major options related to how ERP is accessed—which are described below.

1. ERP architecture options
 - Single-tenant - one or more ERP instances per one ERP buyer
 - Multi-tenant - ERP application shared by multiple companies
2. ERP management: Managing the ERP includes the hardware, software stack, general maintenance and upgrading of the ERP, Internet access resources, and failovers for all the above. This section **does not** include entities involved in implementing and tuning ERP to support a business's process and metrics objectives. The following are the key entities that may be involved with the management of the ERP depending on the deployment model used for an ERP user.
 - ERP *Managed Service Provider* (MSP) – which may or may not be the ERP seller.
 - Commercial data center
 - Internet backbone providers
 - Company using ERP
3. Payment options for ERP access
 - Owned Licenses with ongoing support/maintenance fees
 - Subscription with periodic renewals

The following sections provide details on the access options listed directly above.

ERP Architecture Options – *Single-tenant or Multi-tenant*

Many business applications, including *remotely accessed ERP*, are offered in a shared company environment called multi-tenant. That is, groups of customers running from one instance of the application with common hardware and management rules. This is in contrast to a single-tenant architecture in which the buyer has their own instance of the ERP application (for development, testing, and production) typically running on one or more



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dedicated virtual or physical server(s). All ERP run on the buyer's selected site are single-tenant.

ERP originally developed for remote delivery is built as multi-tenant. At Engleman Associates, Inc. we don't know of any relevant exceptions. This is because it is significantly easier and less costly for the ERP seller to manage and update a multi-tenant ERP environment instead of hundreds or thousands of individual customer installations. For this reason, ERP sellers that started with single-tenant ERP and have the resources are increasingly moving to the multi-tenant delivery option. Further, once they have it they really downplay their single-tenant option—all the way to claiming it's no longer offered, even when it really is.

The reasons for the existence of many single-tenant *remotely accessed ERP* options are (1) the ERP seller does not have a multi-tenant offering, but makes their regular single-tenant ERP available in a remotely hosted offering, and (2) many ERP buyers have ERP access objectives that make a multi-tenant option less favorable—which are examined in the next section.

Multi-tenant compared to single-tenant *remotely accessed ERP*: The following explains the positive factors and limitations of multi-tenant ERP in comparison to single-tenant. Even though the list of potential limitations for multi-tenant is long, a particular buyer may find the estimated benefit level creates an overall net positive for the multi-tenant approach.

Multi-tenant potential benefits (compared to single-tenant):

1. Stability improved: The potential for a more stable ERP environment exists with multi-tenant based on the rigorous standards of the professionally managed ERP. Also, narrower options for company-specific modifications which can be a source of ERP management problems for users.
2. Future migration to multi-tenant: If using a single-tenant ERP there is a risk that in the future the ERP seller will force their customers to migrate to a multi-tenant environment. This poses a number of risks for the buyer, including unexpected costs.

Multi-tenant potential limitations (compared to single-tenant):

1. ERP development flexibility reduced: This refers to the likely reduction in options and depth of tools offered in multi-tenant ERP to extend and modify the ERP business process functions, interfaces, workflows, metrics and integrations. These limitations are especially relevant for buyers who do a better job designing future-state processes, metrics, and integrations which will increase the need for such ERP modifications.
2. ERP hardware performance risks: In a virtual multi-tenant environment the buyer shares CPU and memory space with other customers, and performance can often vary from one application instance to another. This is often referred to as the noisy neighbor problem. Such a problem does not need to exist in a single-tenant environment as the company accessing ERP fully controls usage and can work with the hosting entity to specify proper hardware.



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3. **ERP buyer commercial controls reduced:** Multi-tenant *remotely accessed* ERP is almost always sold by a periodic subscription fee to access for a specific period of time. This subscription term is in stark contrast to classic ERP licenses that were owned perpetually. Further, in a multi-tenant offering one supplier has full control of all aspects of ERP access as compared to single-tenant in which the hosting entity can be either a third party or the ERP buyer. This **'full control' by sellers isn't favorable for buyers** in such a commercial relationship, and requires careful legal terms to mitigate this illegitimate control which the seller has over the buyer. See more in the following section called *Commercial Terms for Remotely Accessed ERP*.
4. **Regulated industries and sensitive data:** Any business that handles sensitive data, especially customer data, has potential issues with data security constraints and limitations in a multi-tenant ERP. Hybrid *remotely accessed* ERP options are evolving that enable portions of data and processes to be controlled at a different location for the buyer.
5. **Financial options:** Multi-tenant is paid for with a subscription that is typically considered an expense. With single-tenant *remotely accessed* ERP, many sellers offer a perpetual license option which can be capitalized and depreciated.
6. **Timing of application upgrades and patches:** In a single-tenant ERP the ERP buyer can choose the timing of major upgrades and even lesser upgrades and patches. This may have merit if the ERP buyer more fully uses modern ERP development tools which create application modifications that may have some conflict with an upgrade. Conversely, this underscores the natural pressure to limit application extension and development options in a multi-tenant ERP environment that could create risks and problems to a mass upgrade.

ERP Management

The following diagram shows the four key parties involved in delivering responsive and dependable access to remotely managed ERP. These four parties are:

1. Managed Service Provider (MSP)
2. Commercial data centers
3. Internet backbone providers.
4. Company using ERP

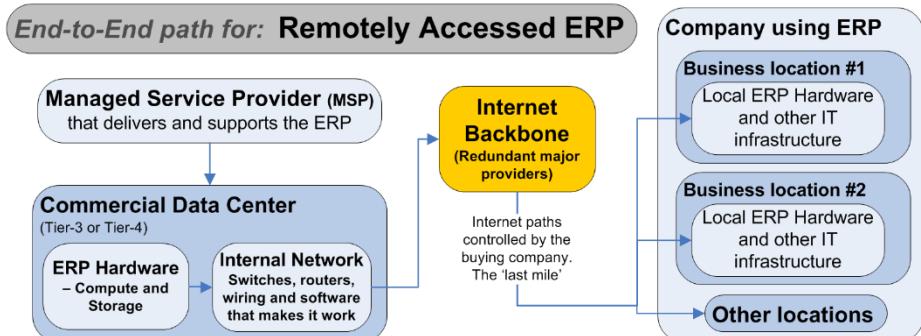


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Managed Service Provider (MSP): This is the key entity that orchestrates the ERP application hosting. The duties of this role could be provided by the ERP company, third-party MSPs, or technically even the ERP buyer (if they had the specialized ERP and complex application hosting skill—which they rarely do).

The MSP manages the ERP, operating system, and other components in the software stack. Typically this includes maintenance, upgrades, and troubleshooting of the *remotely accessed ERP* application. However, some of this may be conducted in concert with the typical ‘functionality layer’ support provided by the ERP vendor or reseller. The MSP also arranges for proper commercial data center infrastructure and should ensure there is proper Internet bandwidth, preferably with multiple Internet backbone providers.

Commercial Data Centers: These entities provide server hardware (CPUs, memory, and storage), related network infrastructure to gain access to the Internet, and a professional security and resilience environment. This offering is called *Bare Metal Service Providers* or *Metal as a Service*. The *Metal as a Service* model offers many of the rapid scaling benefits. Seek at least a tier three data center (tier four is the best) as described by Technopedia: “A Tier-3 data center is a location with redundant and dual-powered servers, storage, network links and other IT components. It is one of the most commonly used data center tiers, where IT components are powered with multiple, active and independent sources of power and cooling resources.” It’s favorable the data center be closer than farther away as increased distance introduces more IT and communication infrastructure, all of which is subject to compromise due to spikes in usage demands, component failure, cyberattacks, natural disaster, terrorism, failed commercial enterprises and more.

Internet Backbone Providers: These are the large telecom companies that work with government regulators and local jurisdictions to manage and improve the general Internet backbone. As noted in the prior section, the MSP has primary responsibility to arrange proper Internet bandwidth to dependably deliver the ERP application traffic between the data center and the internet backbone.

Company using ERP: At the other end of the Internet pipe are the company teams using the ERP. They are responsible for arranging and managing effective access in the ‘last mile’ from the Internet backbone providers to its various ERP user locations. Managing all or some of the ERP buyer’s *last mile* can also be outsourced.

ERP Access Payment Options

The two basic ERP access payment options are:

Owned licenses with ongoing support/maintenance fees: This is the classic ERP access model in which the ERP buyer owns the licenses for an unlimited time per the terms of a license agreement. The ongoing fee, either called support or maintenance in the industry, pays for application upgrades/fixes and a support function that provides help on ‘functionality layer’ issues. In this model the ERP buyer can stop paying the maintenance/support fee and keep using the existing ERP.

Subscription with periodic renewals: In this model the ERP access is subject to a subscription fee that has a time frame term. In a multi-tenant delivery model the subscription fee nearly always pays for all aspects of ERP access

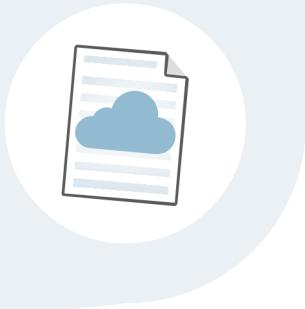


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and 'functional layer' support. A buyer can access ERP in a subscription model but independently pay for hosting or support with other service providers.

Some ERP offers are a hybrid of the two options detailed here. Details on arranging for proper ERP access costs and commercial terms to control costs over time are included in later sections of this document.

Performance of *Remotely Accessed ERP*

Sellers of *remotely accessed ERP* brag about solid performance standards and unrestricted scalability of their application to meet the various demands of customers. 'Scalability' generally means that ERP users can add as many new users, modules, and transaction loads as they like, and the application will remain available and responsive.

The reality may be quite different. Overall performance is affected by all four participants in the diagram above (MSP, data center, Internet backbone provider, and company using ERP) and how they select and manage all software, hardware, and Internet access which is under their control and affects *remotely accessed ERP* delivery. Although two participants could be performing well, a third entity involved could be a bottle neck compromising ERP performance. Therefore it is important to monitor all four carefully so causes of poor performance can be more quickly and effectively identified.

Of the four participants, the one with the most 'going on' and most chance for performance degradation is the MSP. This includes the MSP's typical responsibility for arranging appropriate data center servers as well as strong and redundant Internet backbone service providers. Therefore, there should be availability and responsiveness performance standards in place which are automatically monitored and carry some sort of penalties for lack of performance. As noted earlier, there are monitoring approaches which can separate the performance of the four entities involved so any lack of performance by any of the entities can be pin-pointed. Otherwise, ERP users may endure slow and undependable access to their ERP with no practical way to quickly establish who or what is responsible. Comprehensive monitoring is critical to managing performance with multiple parties, a thousand miles of Internet lines, and many points of potential degradation.

There are many performance monitoring solutions for all participants, from open source options to polished commercial offerings. An earnest MSP should have proactive monitoring as a default element of their offering for monitoring three of the four elements, (1) hardware at the Data Center, (2) Internet provider speed and stability, and (3) the management of the software stack which the MSP directly controls.

Providers of *remotely accessed ERP* are presumed to have the skill and motivation to get this right. They also have economies of scale with hundreds if not thousands of customers. However providers of *remotely accessed ERP* have no incentive to create excess capacity, but instead make hardware, software stack, and Internet access investments to support reasonable customer needs, not unlimited needs. These *remotely accessed ERP* offerings would therefore show signs of strain if demand exceeded the plans, or if there were other issues with the ERP provider or their business partners. Therefore, all elements of the *remotely accessed ERP* structure should be



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understood, and all elements in a particular *remotely accessed ERP* offer challenged to confirm status against industry best practices.

Cost Control for Remotely Accessed ERP

A fundamental and understandable goal of the ERP vendor is to develop and protect the ongoing revenue stream they derive from existing ERP customers. This revenue stream helps fund the company, including improvements to the ERP offering and ERP support. Projections of such a revenue stream are also highly influential to a company valuation. Unfortunately, the typical methods used to improve and secure ongoing revenue for ERP companies are quite counterproductive to the legitimate interests of the ERP buyers. These ERP industry methods take advantage of the reality that it is a daunting proposition for a company to change ERP—meaning the sellers can be quite brazen in charges they make without much risk of losing a customer. Based on this commercial situation, the key ERP access cost areas to be controlled are:

1. **Initial costs**: Initial ERP access cost objectives are often no more than 50% of the list pricing. However project-specific factors could change how ERP access cost objectives are developed. Further, cost objectives for different user types and functional modules are always influenced by project-specific factors. Finally, achieving such effective initial cost objectives usually has a large influence on periodic ongoing ERP fees—**so it must be done well**. Finally, as ongoing ERP maintenance or subscription fees are usually based upon initial ERP access costs, achieving effective initial cost objectives has a large influence on ongoing ERP fees, **so it must be done well**.
2. **Cost escalation of ongoing fees**: This refers to ERP maintenance/support fees or subscription fees to be raised over time. Sellers seek to have no rules here so they may raise customer fee amounts over time in any amount they think will be endured. **An ongoing cost escalation term is critical**—especially for an ERP subscription, as there are no options to stop these fees like there is with perpetual license maintenance/support fees.
3. **Future ERP purchases**: At some point after the initial purchase, ERP buyers typically need to purchase more users, modules, and other access. Eventually however, buyers are typically forced to endure high list pricing and regular bad terms because favorable future purchasing rules were not arranged at the time of the original purchase.
4. **ERP access rules**: ERP access licenses have various rules and limits that are often difficult to assess when purchasing the original access, but often result in cost adders to buyers when the previously unknown limitations are subsequently encountered.

In the sales process for offering *remotely accessed ERP*, especially multi-tenant, sales people will lead with vague statements that the cost to access their ERP is less expensive than classic perpetual license ERP. Over time this is almost never true based on the nature of typical control the sellers have over the buyers in a *remotely accessed ERP* environment. Similar statements about



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implementations have also been observed in our client projects and are untrue as is explained later in this document.

The following is the process for a buyer to effectively purchase ERP access. Since a particular buyer's *remotely accessed ERP* could be multi-tenant subscription or professionally hosted perpetual licenses, the buying process described here does not differentiate the two.

1. What is needed from ERP: Be clear about the scope (business processes being supported and business units) and what portion of the scope should be supported by the class of ERP being reviewed. Carefully establish user needs from typical front office ERP users, shop floor users, device access, integrations, and other discrete access.
2. Subscription or Perpetual licenses: Establish if there is a technical or financial reason to pursue a multi-tenant subscription model or professionally hosted perpetual ERP license. Key reasons for direct ownership of perpetual ERP licenses are:
 - a. Control: License ownership provides an increased level of control of the application and critical business data if there's a commercial dispute (especially if hosted by an independent MSP and not the ERP company). Most of these control issues were detailed in an earlier section of this document on multi-tenant or single-tenant ERP.
 - b. Cost reduction options: Ongoing cost of upgrades and support can usually be reduced or stopped if the company using ERP determines these items are losing value or the company is planning to migrate away from the ERP in the foreseeable future. With subscription-based *remotely accessed ERP*, periodic payments are mandatory until the buyer stops ERP usage. And because they are mandatory, there are little to no reasons for the seller to discount at future negotiating moments—but instead raise prices.
 - c. An asset: The ERP license is owned and has value—even if accessed remotely. This point could be material for a future acquirer of the company using the ERP who may be aware that with the subscription approach the buyer owns nothing and likely has tenuous commercial controls.
3. ERP access costs objectives: It is important to have a plan for what constitutes a solid purchase price for ERP access as well as the other potential software components needed for the full enterprise software plan. Knowing what constitutes effective pricing does take experience and is explained in reasonable detail in our white paper [ERP Software Cost Control](#).
4. What is offered by a particular ERP: First understand how the specific ERP is offered from the seller, then align the specific ERP modules' user types and other access dimensions to the buyer's needs established in the first step in this list.
5. Presenting ERP access cost objectives: In most cases the achievable ERP access cost objectives from step #3 will be significantly less than



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the normal discounted amounts an ERP seller would offer. Therefore, it is typically safe and tactical to present the objectives at the start of the cost negotiations. For the cost objectives to be taken more seriously, there needs to be a real environment of competition and some calendar time to work the process to get cost and terms to a favorable point.

6. Processing ERP access cost offers: All offers are checked for alignment to the planned ERP access rights established in Step #1. Only if ERP product to ERP buyer alignment (step #4) is confirmed can the cost offers be assessed. Be prepared to compare different ERP access approaches since some offers may be multi-tenant subscription, professionally hosted perpetual license, and many sellers offer both.

Without following the general process above and arranging solid commercial terms to compliment the cost control objectives, **the buyer will likely end up with the typical deal that over time will cost two to four times more than the otherwise achievable life cycle costs**. Costs literally can expand by this amount if the cost control fundamentals are materially off, and this point explains the seller's resolve and use of smoke and mirrors to reach the 'regular deal'. See this white paper to learn much more about [ERP Software Cost Control](#).

Commercial Terms for Remotely Accessed ERP

Sellers of *remotely accessed ERP* tend to have an attitude that they're selling a monthly high-tech service such as Internet access or web hosting. Accordingly, contracts governing access to *remotely accessed ERP* often reflect this attitude with a stunning disconnect about the critical commercial controls a buyer should legitimately possess when attempting to arrange dependable and cost effective access to any mission-critical business application, like ERP. Many sellers of *remotely accessed ERP*, especially the larger ones, are immersed in this abusive commercial culture. They actually believe their expectations of prospective customers are reasonable and have multiple layers of institutional obstacles maintaining their status quo. The buyers will usually endure excuses and claims that the sellers have given all they can on various matters—however very little of this is true if the buyer knows how to navigate and control the process to purchase rights to use *remotely accessed ERP*.

Risk profiles of the parties: The ERP buyer is at the extreme risk of being unable to operate if the ERP becomes unavailable, while the seller is merely at risk of losing a small portion of their revenue if the buyer does not pay or stops using ERP. This type of difference in risk is unhealthy in any commercial relationship.

The typical contracts for *remotely accessed ERP* enable the seller or their agent to 'turn off the ERP switch' for effectively any contract breach—real or imagined. Practically the ERP sellers would not 'turn off the switch' as a first recourse, but the specter of this option creates an intimidating environment in which the buyer has no effective options but to bow to the will of the seller—except for executing the radical step to select, pay for, and implement another ERP. ERP users have to endure a lot of abuse to take this step—and those selling ERP access are well aware of this point.



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Unfortunately, many buyers have blindly accepted this type of commercial relationship which is one key reason this situation with poor commercial terms has become worse in recent years. However, new buyers are becoming increasingly aware of the commercial terms risk of the typical *remotely accessed ERP* offering and are pushing back. At Engleman Associates, we see this with most clients when they're educated about the risks and their options. Enough of this pushback will be the basis for eventual fundamental changes to the ERP application industry direction and attitude. See our white paper on [ERP Contracts – Achieve Critical Terms](#).

Implementing Remotely Accessed ERP

Sellers of multi-tenant ERP will often claim their ERP is easier to implement. Such a statement may be true, but not for the reasons the seller will state.

Whether *remotely accessed ERP* or on-premise ERP, the main factors affecting implementation effort are capabilities and complexity of the ERP application, strength of the implementer, and the readiness, talent, and capacity of the buyer to lead the ERP implementation effort. Therefore, any claims of an 'easier implementation' from any *remotely accessed ERP* application vendor, if true, can only mean less functionality or fewer configurability options compared to other ERP solutions without such limitations.

Risks and Benefits—for Various Managed ERP Options

The matrix below rolls-up the various risks and benefits of options for *remotely accessed ERP*. It puts the benefits and risks in terms of the buyer of ERP access and the sellers, and highlights the stark difference that what benefits the buyer is quite often the opposite of what benefits the ERP seller.

Options for ERP Access	Potential Benefits		Potential Risks	
	Buyer	ERP Vendor	Buyer	ERP Vendor
Multi-tenant subscription hosted/managed by ERP Vendor.	> No cost and management of local hardware and software.	Lowest cost delivery approach, maximum customer control, less support issues.	High lifecycle costs, loss of commercial control and buyer-controlled failover process, internet issues, forced upgrades, reduced dev. options.	Nothing material determined.
Single-tenant subscription hosted and managed by ERP vendor.	> No cost and management of local hardware and software.	Generally the same as Multi-tenant – but less profitable.	Generally the same as multi-tenant, except better dev. options and upgrade timing options.	Nothing material determined.
Single-tenant subscription hosted and managed by independent managed service provider (MSP).	> No cost and management of local hardware and software.	Control of buyer based on typical terms of the subscription model.	Generally the same as multi-tenant, except better dev. options and planned upgrades, improved commercial control.	Involvement of 3 rd party MSP and loss of hosting revenue.
Single-tenant, buyer owned licenses, hosted/managed by independent MSP.	> No cost and management of local hardware and software. Better ERP access costs & commercial control.	Less support issues with buyers because of MSP presence.	Loss of some commercial control and internet issues.	Less revenue /profit over time, 3 rd party MSP issues.
Single tenant, owned licenses, hosted by buyer with external MSP mgmt.	> Lower lifecycle costs, good commercial control, MSP manages local hardware/ERP.	Less support issues with buyers because of MSP presence.	Local ERP hardware and software management issues and costs even with remote MSP.	Near complete loss of benefits gained in multi-tenant approach.



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Conclusion

"All business software is going to the *Cloud*"—so say ERP sellers promoting *remotely accessed ERP*. Many of their industry analyst friends echo this point of view, and they've all been increasingly talking this way for over ten years now. Many ERP sellers that started with on-premise ERP are following along as they have created *Cloud* versions, and many have *Cloud* lingo in their branding.

However as this paper points out, this unquestioned '*Cloud* movement' is not quite the nirvana many proclaim, and the term '*Cloud*' may actually hold the more typical meaning of obscurity, danger, and lack of direction . . . as in 'head in the clouds' or 'there are dark clouds on the horizon'. Conversely, this paper points out positive aspects of *remotely accessed ERP*, 'the cloud's silver lining', while pointing out the potentially negative aspects for *remotely accessed ERP* and how to contain them.

The current undesirable aspects of how most *remotely accessed ERP* are sold will likely be forced out over time in favor of more fair default techniques and terms. This opinion is based on many ERP selection projects at Engleman Associates, Inc. in which most ERP buyers, once briefed, understand why the typical *remotely accessed ERP* technical and usage fee approach holds potential problems that need to be identified and contained.



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