

EXHIBIT 21

Message

From: Zepecki, John [/O=SAP/OU=AMERICA2/CN=RECIPIENTS/CN=00000230476]
Sent: 1/5/2005 5:55:59 PM
To: Shenkman, Arlen [/O=SAP/OU=AMERICA1/CN=RECIPIENTS/CN=00000225832]; Mackey, James [/O=SAP/OU=AMERICA1/CN=RECIPIENTS/CN=000000065459]; Geers, Torsten [/O=SAP/OU=AMERICA1/CN=RECIPIENTS/CN=000000100655]
CC: Word, Jeffrey [/O=SAP/OU=AMERICA2/CN=RECIPIENTS/CN=000000064566]
Subject: TomorrowNow/PSFT related background info
Attachments: Peoplesoft 1-2-3 01 05 05.doc

Arlen, Jim, Torsten,

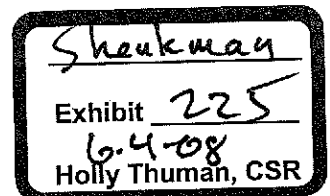
I am enclosing a document that I sent to Shai a couple of weeks back (although there are some updates since then). I think the summary of discussion of points was forwarded to all of you earlier, but probably not the document.

It might have some value for the business case or as general background. Questions, please let me know.

Regards,
Johnz



Peoplesoft 1-2-3
01 05 05.doc



SAP-OR00004991

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
Case #: 07-cv-01658-PJH
PLNTF EXHIBIT NO. 0015
Date Admitted: _____
By: _____
Nichole Heuerman, Deputy Clerk

Peoplesoft 1-2-3

Version 1.2, John Zepecki Jan-05-05

Peoplesoft Background

Peoplesoft customers can be segmented into three major groups – Peoplesoft Enterprise (applications based on PeopleTools technology), Peoplesoft Enterprise One (applications based on JD Edwards' web enabled client server technology – a combination of C code and proprietary scripting language) and Peoplesoft World (JD Edwards historic product that runs only on AS/400 systems and is written in RPG). The Peoplesoft Enterprise customer profile is much more similar to the 'typical' SAP customer profile than the typical Enterprise One or World customer. The majority of customers shared between SAP and Peoplesoft can be expected to be Peoplesoft Enterprise customers.

Peoplesoft Enterprise One and World are both delivered as a single integrated package that resides in one physical database, often on one single machine (often an AS/400). The typical Enterprise One or World customer will install an instance of the software and manage core manufacturing, distribution, etc. business functions. Larger customers who leverage Enterprise One and World will typically deploy a unique software instance at each division or plant and leverage functionality to consolidate financial data and other shared information in one master instance. Both Enterprise One and World are "light" on HCM related functionality with new functionality added to Enterprise One in the past twelve months.

The majority of the JD Edwards installed base (70-80%) is on the traditional World product line. JD Edwards (and now Peoplesoft) has had little success in moving the World installed base from the AS/400 platform and World application suite. The World customer base in many cases is content with the level of functionality in the World product, has heavily customized their systems in many or most cases, and has strong and sometimes fanatical loyalty to the AS/400 platform. World software installations have received some Web based access in recent World software update via a partnership with a third party "screen scraping" technology. Despite the lack of significant new functionality in the World product line, the overwhelming majority of World customers continue to pay software maintenance.

The general resistance of the World/AS400 base to change and the profile of this customer base does not make this customer base that attractive as an upgrade opportunity. JD Edwards has failed to move this customer base for years and SAP is unlikely to move this customer group to mySAP ERP in mass numbers. The World software product line is an extremely profitable software maintenance revenue stream.

The organization supporting the World software product is relatively small (less than 50 full time development resources total with a very stable software base). SAP's ability to establish a critical mass of personnel is possible as Oracle is very likely to move World software support to a low cost country. SAP's ability to provide an attractive alternative to Oracle/Peoplesoft support is questionable unless there was some inherent cost

advantage for World customers. The World software maintenance business is extremely profitable for Peoplesoft/Oracle – affecting Oracle’s ability to maintain this revenue stream could impact the ROI assumptions of the Oracle/Peoplesoft deal.

The Peoplesoft Enterprise One installed base has similar characteristics to the Peoplesoft World customer base. Peoplesoft Enterprise One has fewer than 1000 active customers across of wide variety of Enterprise One software versions. A good portion of the Peoplesoft Enterprise One installed base relies on the AS/400 platform, in many or most cases DB2/AS400 is the database platform of choice.

Like the World software installed base, it is questionable how attractive this installed base would be to capture for upgrade to mySAP ERP and the limited install base (which are on a wide range of versions of Enterprise One) would make support difficult and/or expensive for SAP. Further research would need to be done, but some large global SAP customers are probably Enterprise One customers as well. There may be a viable business case to provide migration services for EnterpriseOne with software support being a less attractive opportunity, but a “door opener”.

The technology which Enterprise One is based upon has a reputation for stability problems and the overall system landscape (i.e. number of servers, third party software, etc.) is complex. Enterprise One Tools rely on or support IBM and BEA technology, furthering complicating the system landscape. Aside from the more straightforward application package, there has been conjecture that the Enterprise One technology platform had a similar operating TCO as PeopleTools.

The Peoplesoft Enterprise software product line is comprised of a series of independent product suites that are linked together via near real time integration interfaces (in some cases) and batch programs. Although there are many interface touch points between Peoplesoft Enterprise product lines, most customers rely on a small number of batch interfaces (to exchange ledger data, pass employee information, and etc.). HCM, CRM, and Financials/Supply Chain are the major Peoplesoft domain areas or “pillars”.

The vast majority of Peoplesoft customers are users of the HCM suite and/or the Financials suite. Within Supply Chain, a small number of modules (Billing, Order Management, Purchasing, eProcurement, Distribution) represent around eighty percent of customer installations. The Peoplesoft customer base is dominated by companies that are driven by human capital (majority of spending is on payroll or service expenses) and deliver various types of services (i.e. education, government, financial, consulting, etc.)

Peoplesoft’s Enterprise Portal is shipped as separate application with integration to the core transactional systems for user, role, and navigation/menu information. Many customers leverage the Enterprise Portal to integrate HCM and Financials/Supply Chain into a single view. The Enterprise Portal is based on PeopleTools technology.

Peoplesoft segments the Enterprise product family based on product line (often referred to as a pillar) and SKU. For example, the HCM maintenance group develops support bundles and software fixes for core HR, eBenefits, general ledger, etc. The HR suite has around 70+ SKUs for example. A large percentage of Peoplesoft customers use the core modules (i.e. core HR, benefits, time and labor, general ledger, AP, AR, etc.) and these core modules represent the vast majority of software fixes and the areas where legislative/regulatory updates are needed. Beyond the core modules, implementation of supporting modules varies widely. Many of the newer or non core modules do not require regulatory or legislative updates.

Supporting all Peoplesoft modules (many with few customers and very specific domain expertise) would be very difficult while supporting the modules with high concentrations of customers would be less difficult and more economical. The majority of the module and specific release will drive the cost dynamics significantly.

In regards to the delivery of software for Peoplesoft Enterprise, high priority fixes are delivered individually and then rolled into a bundle of fixes. Bundles of software fixes are delivered to customers at six or twelve week intervals (depending on volume of fixes). Legislative and regulatory updates are often delivered as combination of software changes and data updates with variance from product area to product area.

Typically the HCM and Financials/Supply Chain have been shipped every 12-15 months. The CRM product suite has been released every 9-12 months. Peoplesoft's software support policy is time based with four year support for releases which includes five years of upgrades.

Additional software support (include legislative and regulatory updates) has been offered for a higher maintenance fee beyond four years. The four year support policy is relatively new for Peoplesoft Enterprise and Oracle has publicly announced ten year support for Peoplesoft products although the exact details of that support are unclear.

HCM has four actively maintained releases and Financials/Supply Chain has three actively maintained releases as of Q4 2004. Most production customers for HCM and Fin/SCM are running software that was shipped in 2001 and 2002. Most HCM or Fin/SCM customers can be expected to be on stable, functional systems in 2005.

PeopleTools is the underlying infrastructure and runtime for Peoplesoft Enterprise systems. PeopleTools could be best compared to Netweaver/BASIS environment from SAP. PeopleTools is updated via point releases at three or six month intervals with more major point releases every two to three years. Major PeopleTools releases (i.e. PeopleTools 8 to PeopleTools 9) have occurred every four to six years. Prior to the Oracle's takeover of Peoplesoft, PeopleTools 9 (to be based on IBM technology) was tentatively planned for the 2006 timeframe and was a major re-architecture.

Although Oracle will certainly name a PeopleTools version "9", it will almost certainly be an incremental improvement and/or move close to the Oracle technology stack. It is

not unlikely that Oracle will rename the next PeopleTools maintenance release "9". All actively maintained PeopleTools versions are currently on six month release intervals as of Q4 2004.

All PeopleTools versions are heavily reliant on BEA's Tuxedo as a core engine for the stateless application server. Tuxedo is a mature product with relatively few changes and updates from BEA. Peoplesoft has struggled to get BEA to add new operating system platforms for the Tuxedo product.

Peoplesoft's agreement with BEA was signed in the mid-1990s and has very favorable terms for Peoplesoft. Removing BEA Tuxedo from PeopleTools is a rewrite of the majority of the PeopleTools infrastructure. Oracle will have no choice but to rely on BEA's Tuxedo for a long timeframe to support already deployed PeopleTools versions. With Tuxedo at the heart of the PeopleTools system, the future direction can be expected to be the Oracle technology stack. Oracle may pursue a strategy of a dual stack model (Oracle application server with Tuxedo, integration on the portal layer) as an incremental step.

Additionally, all Peoplesoft Enterprise customers leverage a J2EE container running either under BEA Weblogic or IBM Websphere. The vast majority (around or greater than 75%) of Peoplesoft customers run BEA Weblogic. Peoplesoft's Java code is limited in PeopleTools and does not use more advanced Java features (i.e. EJBs, newer Java APIs). The original version of PeopleTools 8 was originally developed under Apache/Tomcat. It should be possible to run Peoplesoft's Java infrastructure under Netweaver's J2EE stack or Oracle's application server with little or no modification.

Upgrading PeopleTools is not a straightforward process and Peoplesoft customers have had negative experiences with new PeopleTools versions "breaking" their production systems and/or causing downtime. It is not unusual for Peoplesoft customers to not stay current on PeopleTools maintenance. The Peoplesoft upgrade typically assumes a current version of PeopleTools. Nearly all application software updates will work with any PeopleTools point release, so customers are not forced to upgrade the technology stack to take application fixes and updates.

The supported PeopleTools Enterprise applications leverage either PeopleTools 8.2x (originally released in late 2000 with many maintenance releases) or PeopleTools 8.4x (released in March 2001 with seven maintenance releases with most maintenance releases delivery new enabling technology). Integration capabilities in the PeopleTools 8.2x technology are limited for non batch operations. Integration capabilities in the PeopleTools 8.4x is fairly robust (although strong knowledge of PeopleTools is required).

Unlike the ABAP/BASIS environment, PeopleTools does a relatively poor job isolating the developer from the nuance of various database environments. It is not unusual that a software fix on one database platform may not work properly on another database platform. This situation is particularly acute with IBM's DB/2 database on the mainframe environment.

The vast majority of Peoplesoft Enterprise customers use either the Oracle or SQL Server database platform. Additionally, there are several batch processing environments with in PeopleTools (although all leverage the same database connectivity layer) including an integrated batch engine called Application Engine, COBOL, and SQR (report writer language originally developed by Brio although Peoplesoft owns the source code). Supporting DB2/AIX or DB2/MVS is possible, but is difficult and extremely difficult without the support of IBM and/or access to a mainframe environment.

While it is technically feasible to provide to support and software maintenance to all three customer groups and all supported hardware and database platforms, all Peoplesoft product lines and functional areas within the Peoplesoft Enterprise product line are not equally attractive. On the ability to execute and cost to execute side, limiting Peoplesoft support to just Peoplesoft Enterprise and/or World (at least initially) and a limited number of system landscapes (i.e. Oracle, SQL Server, no mainframe operating system support) makes sense in limiting SAP's risk and maximizing ROI. As SAP has more experience, adding additional platforms and products (with perhaps a variable pricing model) is possible.

SAP should research with its customers who run Peoplesoft which modules are in production. SAP may get a significant ROI and limit its risk by focusing a limited set of system landscapes and a limited set of modules (like core HR modules or core finance modules) and stable releases. As newer modules and release stabilize, these release could be added.

TomorrowNow's Peoplesoft Support

A third party company named TomorrowNow offers maintenance for all Peoplesoft product lines today with the bulk of customer running Peoplesoft Enterprise 7.x. TomorrowNow was founded in 1998 to provide consulting services (packaged, time and materials basis) and evolved into a support service. Peoplesoft World and Enterprise One support was added in late 2004 with no customers "live" on support or signed by January 1, 2005.

TomorrowNow offers a "no frills" support model. TomorrowNow customers have stable production systems. TomorrowNow delivers updates (tax, legislative, etc.) to keep software "current". A TomorrowNow customer essentially "freezes" a working implementation. TomorrowNow will provide assistance if a customer is "down", but does not provide any guarantees or warranty of service. A TomorrowNow customer pays one half of their current Peoplesoft support contract value for the "no frills" level of support.

TomorrowNow creates a replica of the customer's system landscape or has access to a replicate of the customer's system landscape via VPN. TomorrowNow uses a vanilla "DEMO" version of Peoplesoft software. TomorrowNow works as a consulting party on the customer's behalf and claims access rights via a customer's license agreement. TomorrowNow packages updates via standard PeopleTools mechanism (called projects).

Each TomorrowNow customer receives a unique set of fixes (i.e. each customer has their own posting of a tax update).

In order to set a new customer up for the service, TomorrowNow will request all software and or fixes (including 3rd party software) that the Peoplesoft customer is entitled too. This library of software and intellectual property represents all the intellectual property from Peoplesoft that a customer has rights to. The newer versions of Peoplesoft software could provide a way for a customer or TomorrowNow to diagnose a problem with an older version of software (i.e. a fix for a problem in release 8.4 could be a fix for a problem in 8.0)

With the uncertainty of Peoplesoft products with the Oracle takeover and general cost pressures on IT organizations, TomorrowNow provides a cost effective alternative. Many Peoplesoft customers will view their next Peoplesoft upgrade as a "reimplement"/repurchase decision instead of an upgrade. Peoplesoft's new upgrade methodology further enforces the perception of a complete new system as well. As a standalone support business, the end game of freezing Peoplesoft customer and generating revenue based on a "no frills" support model is interesting. This support model will be attractive to a niche of customers. Whether the model is attractive to larger organizations with more sophisticated needs and environments is unclear.

TomorrowNow brings domain expertise and some basic processes to the Peoplesoft support arena. Nearly two years of practical experience with customers is valuable as well. Both assets provide a time to market advantage for offering support to Peoplesoft customers. Given TomorrowNow's public explanations of its support offering and lack of unique and defendable intellectual property, it can be expected that other new entrants to this market will emerge.

Many Peoplesoft partners will be displaced by Oracle's product directions and providing Peoplesoft support represents a potentially lucrative option for Peoplesoft domain experts. With Oracle's need to cut costs and make the Peoplesoft acquisition work financially, it can be expected the Peoplesoft domain experts around the world will be in much higher supply by the end of January 2005.

Leveraging a TomorrowNow type service within SAP presents new challenges. Freezing a Peoplesoft customer "forever" is not an end goal for SAP. SAP ultimately wants to sell more software and upgrade a customer to mySAP. SAP will need to develop some type of tiered pricing/support model to help support both a disruption and upsell/migration strategy. SAP needs to be considerate of any conflicts it may create in the SAP installed base when offering a "no frills"/lower cost support offering to Peoplesoft customers.

Given the cost of enterprise software maintenance, it is not difficult to see a Peoplesoft support offering as a profitable business. It can be expected that Peoplesoft customers will push for more than a "no frills" model and that Oracle will respond with legal action in some way or another.

Peoplesoft 1-2-3

The following sections discuss high level steps to disrupt Oracle's software maintenance business and ultimately capture Peoplesoft customers as SAP customers. Although its possible to execute on any of the steps independently, there is value in providing a roadmap and vision for Peoplesoft customers. Additionally, each step helps SAP both generate revenue and build a relationship with the customer.

Step 1 – Provide current SAP customers Peoplesoft support

Background

SAP has the opportunity to provide customer service and product maintenance for Peoplesoft customers. Current SAP customers that use Peoplesoft for HCM or Financials represent the most attractive customer base to target with this offering. The HCM functional area is the most attractive area to target (high number of customers, most likely to need enterprise functionality). This segment of Peoplesoft customers are most likely to migrate to mySAP ERP given their company profile and relationship with SAP.

The Peoplesoft World customer base is equally attractive, but for different reasons. First and foremost, Peoplesoft World is very stable and many or most World customers do not expect to upgrade to a newer version of software from Oracle. These customers are likely to be interesting in a low cost, no frills support offering. The World customer base is additionally attractive due to the large installed base. The level of disruption generated by World software support offering from SAP would be high and the delivery risk and financial risk is relatively low.

It should be noted that most large Peoplesoft customers pay greater than 17% for software maintenance in return for some enhanced support capability (dedicated account representative, extended support hours). SAP may be able to price its Peoplesoft support under more attractive terms or provided a set of tiered pricing with a customer having the ability to upgrade level of service at a later date.

Aside from the uncertainty and challenges in doing business with Oracle, most current Peoplesoft customers will be asked to undergo a license conversion program of some type to fit into Oracle's pricing module. (Oracle's pricing model is more similar to SAP's model). Peoplesoft had an aggressive license conversion program when JD Edwards was acquired to achieve a consistent "SKU" based license model. It is unclear if Oracle will be aggressive in forcing changes in contract terms.

Given each customer is likely to undertaken changes in contract and changes in service, SAP has an opportunity to present a change to SAP as an alternative at a time when Oracle is forcing changes. Even if SAP does not convert all Peoplesoft customers, SAP may force Oracle to change its behavior or plans around pricing or positioning.

Expertise and access to Peoplesoft systems are significant barriers to providing Peoplesoft support. SAP would need to be established with a large SAP customer(s) or in partnership with a systems integrator (i.e. Accenture, IBM) to allow SAP or its partners to develop, test, and package software updates or leverage a customer's access rights to provide these services. It should be noted that Peoplesoft ramped up several hundred developers under a build operate transfer agreement with Hexaware in Bangalore, India in the past 18 months. This talent pool would help establish a lower cost country workforce to deliver software support.

SAP will need to investigate any legal issues around delivery of derivative works (in form of bug corrections and legislative/regulatory updates) with the expectation that Oracle may legally challenge SAP's right to provide software maintenance. Given Oracle's poor company reputation and planned headcount reductions, SAP may have an opportunity to acquire skilled talent with product expertise in the Bay Area as well.

Challenges

- Access to Peoplesoft systems to create and deliver software fixes
- Inability to patch underlying technology stack (PeopleTools) or deliver updates for underlying infrastructure (i.e. Tuxedo updates, support for new database or operating system versions)
- Wide variety of technologies used in Peoplesoft products (i.e. Peoplecode, COBOL, etc.)
- Recruiting skilled personnel to deliver support in short time frame
- Lack of consistent product architecture or design approach between functional areas and modules
- Legal challenges by Oracle

Opportunities

- Many large SAP customers are Peoplesoft HR customers with ERP 2005 usability is less of a competitive pain for SAP
- Many customers already plan to switch to SAP instead of stay with Oracle
- Capture of incremental revenue stream in short term and increase SAP footprint over time
- Positive public relations – supports Safe Harbor campaign
- Disruptive to Oracle

Talent

- Tom Shields – currently responsible for Sydney site and based in Sydney for Peoplesoft; previous position was VP of HR group – managed the delivery of Peoplesoft 8 HR; long time Peoplesoft employee with many years enterprise software experience; well respected and “knows” the entire software food chain at Peoplesoft; is unlikely to be retained due to role and Sydney location; geography is a problem, but could play a start up role on contract basis
- Catherine Jensen – current customer service VP for HCM group at Peoplesoft; held similar role for SCM group; has experience with level 1/2/3 support at Peoplesoft and

global responsibility; hands on leader capable of building a call center and working with large customers

- Mary June Dorsey – current customer service director of Financials and EPM groups; very effective running a call center and knows financial product set well
- Hexaware ISC in Bangalore – Peoplesoft has a Build Operate Transfer (BOT) with Hexaware in Bangalore; each Peoplesoft group has dozens to hundreds of contractors delivering software fixes (including legislative/regulatory work) for Peoplesoft Enterprise; unclear what Oracle will do with Hexaware's personnel which are billed per hour today – outright purchase of the Hexaware operation might be attractive as part of acquisition restructuring charge; Hexaware has not treated Peoplesoft's contractors particularly well and attrition is high even by Bangalore standards
- Functional knowledge experts – many Peoplesoft employees are reaching out right now, quickly determining breadth of support and products and identifying key people is possible; willingness to support remote employees or non U.S. based employees could significantly help recruiting

Short Term Recommendation

- Determine breadth and depth (i.e. what modules, what product lines) SAP plans to support initially to determine hiring plan and approach
- Establish an office in Pleasanton, California and announce the office via a press release and indicate job openings
- Determine organizational constraints (i.e. size, geographies, etc.) for support organization
- Target/identify a leader for the support/maintenance organization and recruit
- Establish strategy for attracting Hexaware talent (either directly or indirectly)
- Create product support strategy (including management of PeopleTools) for three year time horizon and develop marketing plan that includes Step 2 and Step 3 of this plan

Step 2 – Drive incremental revenue through composite applications

Background

Oracle has pledged to support Peoplesoft customers for ten years on current products. Peoplesoft's standard support was for four years. Provided Oracle delivers on its ten year support promise, Oracle will have effectively frozen the Peoplesoft installed base or large percentage of the installed. As a result, Peoplesoft customers can wait on any decision around upgrade of their core transactional systems.

Peoplesoft had a relatively high level of success upgrading customers to Peoplesoft 8. Many HCM customers installed and went live with HR 8 in 2001 and 2002. Financials/SCM customer adoption was more staggered – Fin/SCM 8 did not support public sector accounting requirements, Fin/SCM 8.4 released in 2002 was the first web offering for the Education/Government sector customers.

With Peoplesoft's four year support policy, a large section of the Peoplesoft Enterprise installed base would have been forced into an upgrade cycle in 2005 or 2006. Peoplesoft's customers were resisting this upgrade cycle and it was widely assumed that the four year support policy would be extended without incremental cost to customers at some point. With Oracle's extended support pledge, it can be expected that most Peoplesoft customers will stay on their current version and wait and see what transpires with Oracle.

In theory, Peoplesoft customers could always buy a new module and implement this product while in production. For example, a customer could implement Billing when already running AP, AR, Projects, and GL. In practice, Peoplesoft customers only rarely implemented new modules outside an upgrade cycle. Aside from customers concerns around risk, the implementation of a new module would often be disruptive to already running modules (conflicting configurations, disruption of batch processes that feed GL, etc.). Peoplesoft had some success delivering add on products outside the core transaction systems. Most Peoplesoft customers owned far more SKUs than they had plans to implement.

More progressive customers were much more comfortable installing a new system and integrated to the core transaction system. Peoplesoft launched an Enterprise Learning Management package as a separately installed product that integrated base data with the HCM core system in late 2003. Within a year of release, ELM was one of the top ten products for Peoplesoft.

Peoplesoft had launched a Sarbanes Oxley solution in June 2004 that was delivered on top of the Enterprise Portal with integration to all support Financials/SCM releases that had significant interest from customers. Peoplesoft's Enterprise Performance Management suite was delivered as a separately installed suite of products with integration to all supported Peoplesoft releases via ETL maps. Each of the mentioned products provided a mechanism for customer to buy and implement new solutions without upgrading the core transactional systems.

With many Peoplesoft customers "frozen" on the core systems release, the only opportunity to sell new products (other than driving an upgrade decision) will be to deliver add on products/composite processes that integrate with shipped/deployed Peoplesoft systems. Oracle will at some point realize that the only path to incremental revenue is delivering composite solutions that integrate to the Peoplesoft installed base of products or Oracle will leverage a data aggregation approach to start to move Peoplesoft customers to Oracle applications.

It is unclear how soon or if Oracle will figure out this reality. Given the churn of the acquisition and focus on stability, it would be unlikely that Oracle would give significant attention to developing or packaging new solutions in 2005.

This gap in new functionality without a customer upgrade will create an opportunity for SAP. xRPM and xPD products could be integrated into Peoplesoft HCM and Financials to provide a solution for Peoplesoft customers immediately.

Additionally, SAP could develop new composite solutions that provide functionality found in newer Peoplesoft products (i.e. provide performance management functionality found in HCM 8.9, provide learning management as a solution instead of ELM, etc.). Many of the composite processes that would be attractive to Peoplesoft customers would be attractive to SAP customers as well.

Integrating and selling existing xApps to Peoplesoft provides SAP an immediate revenue opportunity, particularly to customers who chose to engage with SAP for software maintenance on their Peoplesoft systems. Developing new xApps with a Peoplesoft installed base in mind further allows SAP to build relationships with Peoplesoft customers, support a program to that offers software maintenance to Peoplesoft customers, helps to cement SAP as the obvious solution to migrate to, and drive incremental revenue

Challenges

- Access to Peoplesoft systems and lack of good interfaces in Peoplesoft products
- Number of combinations of Peoplesoft supported systems and underlying system landscape – difficult to test and validate all combinations
- Time to market window
- Competition for resources with other SAP priorities

Opportunities

- Peoplesoft customers looking for means to extend life and value of installed systems
- Lack of attention by Oracle
- Synergy with other SAP composite initiatives
- Use new xApps as vehicle to replace BEA Weblogic with Netweaver at the J2EE container for PeopleTools

Talent

- Ron van Grinsven – principal engineer (15 in company) in PeopleTools group; chief architect for Skillsvillage; developer at Baan Company for many years; strong knowledge in PeopleTools technology, Java technologies, workflow, etc.; could easily architect integration between SAP and Peoplesoft at application and/or technology layer
- Services Procurement/SRM teams – many ex-Skillsvillage and ERP veterans (Baan, ASK) in the SCM group; given the relatively lack of strength in SCM for Peoplesoft, these teams are probably at high risk of being laid off or folded into Financials organization
- Functional experts available in HCM areas – roadmap of solutions will help target hiring, but acquiring solution management/domain experts is possible

Short Term Recommendation

- Analyze list of proposed composite solutions in SAP's 2006 planning and determine attractiveness to Peoplesoft installed base
- Determine solutions that would be an attractive alternative to upgrading/extending current Peoplesoft systems
- Build business case to fund additional personnel to integrate xPD/xRPM solution into Peoplesoft releases with PIM message for services companies
- Synch with HCM initiative to identify target applications for Peoplesoft installed base

Step 3 – Upgrade Peoplesoft customers to mySAP ERP

Background

Peoplesoft's World and Enterprise One products rely on proprietary data movement and transformation scripts. The World and Enterprise One data models are relatively stable over the past few years. The overall enterprise model for both systems is relatively simple and limited in comparison to Peoplesoft Enterprise (or SAP). An upgrade from Enterprise One or World to SAP would require expertise on the SAP side to default SAP configuration and data values along with a functional expert on the Peoplesoft Enterprise One or World side to match business concepts. The most straightforward mechanism for upgrading a customer would be some type of ETL technology. Peoplesoft had planned to move the upgrade of Peoplesoft Enterprise One to an ETL based upgrade at some point in time.

Peoplesoft's Enterprise product line has historically relied on a series of scripts (in a variety of technologies like COBOL, SQR, shell scripts, etc.) to upgrade its customers from version to version. The Peoplesoft upgrade has two major parts – the application upgrade and the PeopleTools upgrade.

Prior to Peoplesoft 8, the PeopleTools upgrade was relatively painless and was a copy of new binary files to a directory in many or most cases. The application upgrade difficulty was very dependent on the amount a customer changed the delivered Peoplesoft product and whether the customer stayed current on software maintenance. The rate of change in the application was varied – release to release might have limited change for some products or quite dramatic changes in other cases.

If a customer "skipped" an upgrade (for example, a customer went from version 8 to version 8.8 without every implementing a version 8.4), the complexity and difficulty of the application update would go up significantly. PeopleTools' lack of a versioning system does not make it easy to easily identify customer changes versus change due to software maintenance. A customer often will have to compare hundreds of pages of reports to determine how to merge customization into a new version. The more the customer changed the base software and the further behind on software maintenance a customer was, the more difficult the upgrade would be.

When a system was upgraded, the installation was upgraded "in place". "In place" means that a version of PeopleTools (i.e. version 8.14) would be upgraded to a new version and then the application version (i.e. HR 8) would be upgraded to a new version. Only database tables that were changed were modified at all, new meta-data was introduced for the system level, and supporting binaries were updated. For large customers with core tables that contained millions of rows, this approach to upgrade would help limit the upgrade window as many tables would remain static from release to release. The requirement to not disturb tables with high data volumes would often limit what software changes and enhancements could be done in a particular release in fact.

With the introduction of the HTML interface in PeopleTools 8, the PeopleTools upgrade became far more complicated, difficult, and time consuming. PeopleTools 8+ releases contained far more Peoplecode based components and PeopleTools stored more administration type data where in pre-PeopleTools 8 versions most code was delivered as binaries. Many PeopleTools 8 point/maintenance releases disrupted customer environments or upgrades were very difficult and time/resource consuming. As a result, many Peoplesoft customers fell behind in upgrading PeopleTools on their production systems. Customers continually complained about the amount of effort to upgrade PeopleTools point versions.

Making things more difficult, the application upgrade usually required a customer to be current on the latest version of PeopleTools before starting the application upgrade. In order to upgrade from Peoplesoft HR 8 to Peoplesoft HR 8.8, a customer might have to upgrade the PeopleTools version several times (i.e. PeopleTools 8.14 to PeopleTools 8.15 to PeopleTools 8.16 then to PeopleTools 8.41) before even being able to start the application upgrade analysis.

The application upgrade relied on batch program in different programming languages which were built over time (i.e. the upgrade from PSFT HR 7.5 to PSFT 8 was modified to support an upgrade from PSFT 7.5 to PSFT 8.3) and many upgrade programs were cumbersome and error prone. Although Peoplesoft had significant success in upgrading its customers to Peoplesoft 8, difficulty of upgrade was a continual customer complaint. With each upgrade to Peoplesoft 8, Peoplesoft typically sold 3-4 new modules so making upgrade smoother was a top priority issue because upgrade helped drive new license sales.

Several projects were started to simplify upgrade and deal with upgrade related issues (i.e. time, quality, stabilization issues, etc.) at Peoplesoft. There were several failed attempts and a handful of incremental improvements in 2001 and 2002. A big issue around these attempts was lack of technology to effectively move data at high speed across database platforms with an easy to use development tool and lack of cooperation from various groups. The inability to perform distributed database operations (i.e. read for system A and write to system B) is due to a lack of functionality in PeopleTools' database layer and the lack of a strong isolation from the database nuances in PeopleTools (i.e. even if distributed operation was possible it would be hard to write SQL so that conversion between database types would be possible).

In December 2003, Peoplesoft entered into an agreement with Ascential Software to leverage Ascential's DataStage ETL technology for its Enterprise Performance Management suite. In this agreement, Peoplesoft received a limited license to use DataStage ETL for the purposes of upgrading a Peoplesoft system (any Peoplesoft product family) to one version to the next version. Ascential's DataStage would be available to be shipped to every Peoplesoft customer for this purpose with EPM customers receiving a broader use license. In Q1 2005, Peoplesoft/Oracle will begin to ship Ascential with every PeopleTools maintenance release.

After a series of pilot projects with DataStage, a decision was made to use DataStage as the technology for Peoplesoft's upgrade. A decision was made not to upgrade PeopleTools with DataStage (at least not initially although it was planned at a later phase). At the same time, the methodology for upgrade was changed.

Instead of upgrading an existing system "in place", a customer would install the new version of Peoplesoft software and then "migrate" the data from the old version of software. The customer would compare any customizations from their production version of software to the new version and re-implement any customizations that were still required.

Peoplesoft's HCM 8.9 release in Q4 04 was the first release to leverage DataStage for the application upgrade. The HCM 8.9 release delivered its upgrade scripts in phases with all scripts being delivered by end of Q1 05. Subsequent Peoplesoft releases (EPM in Q1 05, Enterprise Portal in Q2 05, etc.) were planned to use DataStage as well.

All ETL maps created for the HCM 8.9 upgrade were newly created. Because DataStage is leveraged for data warehousing, produces SQL, has export capabilities, etc. it is far easier to understand what happens during the upgrade scripts than in the past. Many of the ETL maps were built by Hexaware in Bangalore. A feasibility study was done to convert existing upgrade scripts to DataStage ETL maps, but this project was dropped after an investigation revealed that the return on investment was low due to the mismatch of technology and the existing upgrade scripts were often overly complex and/or poorly constructed. It should be noted that all Peoplesoft meta data and application meta data is stored in relational database tables. Although the mapping might be complex (particularly with tables that stored meta data that drive rules type engines), mapping all Peoplesoft data to a new target should be possible.

At the same time that Peoplesoft was shifting upgrade to DataStage and rebuilding all upgrade scripts, the Enterprise Performance Management team was building ETL maps from every supported Peoplesoft release (including Enterprise One and World) to EPM 8.9. (EPM 8.9 was scheduled to ship in Q1 2005, it is unclear if or when this release will actually ship with Oracle's takeover.) In EPM 8.9, all Peoplesoft data models are rationalized around consistent business concepts and normalized in a series of data marts with common dimensions.

The EPM data modeling team has extensive knowledge of Peoplesoft's data models (both Peoplesoft Enterprise, Enterprise One, and World). This knowledge of data models would be required for any mapping of Peoplesoft's data to an SAP system. Knowledge of core architecture tenants of the Peoplesoft (Business Unit, SETID, financial ledger structures, etc.) would be critical for mapping business concepts. The EPM application team has skilled personnel on these topic areas. Creating a packaged integration of Peoplesoft World or Enterprise One would require the same type of skills sets.

Peoplesoft's shift in upgrade approach presents an opportunity for SAP. All Peoplesoft customers will effectively have to re-implement/reinstall when upgrading. Oracle is likely to strongly push customer to upgrade to Oracle eBizSuite instead of a newer version of Peoplesoft. Regardless, a customer will be asked to do something new and is likely to perceive it as a good opportunity to change or may be more open to a change to SAP.

With Peoplesoft's proprietary upgrade, it would have been more difficult to offer an easy path to mySAP ERP. With the change to use DataStage it is much more possible to change Peoplesoft's delivered ETL maps to map data to a mySAP ERP target. This effort would require a license from Ascential and would require analysis and engineering to effectively map to the mySAP ERP target.

The analysis effort would require capable functional experts on both the Peoplesoft side and SAP side, but the actual creation of ETL maps could be done in a low cost country and even outsourced. If Oracle decides to stop using Ascential (which is unlikely), SAP could create ETL maps using a similar approach for upgrade. Most ETL maps are simple in nature and could be developed in a low cost country.

With SAP's OEM relationship with Ascential, Ascential limited prospects working with Oracle, and Ascential's product line (which includes data quality, meta data management, etc.), its possible that SAP could partner with Ascential for the base ETL technology at an extremely low cost.

Challenges

- Oracle may decide to stop using Ascential for upgrade, its unclear whether Oracle will react fast enough or the delay caused by a change would be acceptable to Oracle – this change could make development more difficult and costly
- The Ascential based upgrade is new and only the initial HCM 8.9 paths have been released – Ascential based upgrades may no longer be developed at all making this type of upgrade more difficult for Peoplesoft customer to accept
- SAP would need application expertise on both SAP and Peoplesoft products to create maps
- SAP would need access to both Peoplesoft systems and Peoplesoft upgrade ETL maps
- Permutations and combinations of system landscapes makes validation of an end to end solutions expensive
- Access to Peoplesoft systems would need to be obtained

Opportunities

- Peoplesoft's EPM Enterprise Warehouse team has significant experience with Peoplesoft's data models and Ascential's DataStage
- Hexaware personnel may be directly or indirectly available to aid an SAP effort in a low cost country
- Cognizant Technologies in India has several hundred trained Ascential experts available in the \$22-\$25/hour range for work done in India
- Congizant Technologies is a Peoplesoft customer and could be a model for Peoplesoft to SAP upgrade
- Ascential is already an SAP OEM partner and Ascential's future with Oracle is not bright – Ascential is likely to want to work with SAP on very favorable terms to SAP

Talent

- Sai Kalur – responsible for the Peoplesoft HCM group's upgrade and delivered pilot projects on Ascential DataStage
- Nathan Christensen – architect for Financials product line upgrade; has very deep knowledge of Peoplesoft's upgrade; in the event Ascential's DataStage is dropped as an upgrade technology, Nate could have expertise to deliver alternative methods to support upgrade to SAP
- Naghi Prasad – director of enterprise warehouse development for EPM; joined Peoplesoft from Oracle; responsible for building several thousand ETL maps for EPM product suite
- Alan Bouris – program manager for EPM product suite; capable of helping to define and driving execution of a large scale project
- EPM data modeling teams in Pleasanton and Denver – domain experts on Peoplesoft Enterprise and Enterprise One data models

Short Term Recommendation

- Based on plan for software support, create a plan for upgrade that is complimentary
- Hire leaders to establish a program for Peoplesoft to mySAP ERP upgrade
- Recruit core data model team to driving mapping process from Peoplesoft to SAP