Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

MINISTÈRE
DE L'ÉCONOMIE, DE L'INDUSTRIE
ET DE L'EMPLOI

MINISTÈRE
DU BUDGET, DES COMPTES PUBLICS
ET DE LA FONCTION PUBLIQUE

DOUANES & DROITS INDIRECTS

Direction Générale des Douanes et Droits Indirects

Annales des épreuves

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

CONCOURS EXTERNE ET INTERNE DES 17, 18 ET 19 FEVRIER 2009

POUR L'EMPLOI D'INSPECTEUR DES DOUANES ET DROITS INDIRECTS DANS LA SPÉCIALITÉ « TRAITEMENT AUTOMATISÉ DE L'INFORMATION – PROGRAMMEUR SYSTÈME D'EXPLOITATION »

ÉPREUVE ÉCRITE D'ADMISSIBILITÉ N° 4 (FACULTATIVE)

(DURÉE : 2 HEURES - COEFFICIENT 3)

TRADUCTION SANS DICTIONNAIRE D'UN TEXTE TECHNIQUE RÉDIGÉ EN ANGLAIS

AVERTISSEMENTS IMPORTANTS

L'usage de tout document autre que le support fourni est interdit.

Toute fraude ou tentative de fraude constatée par la commission de surveillance entraînera l'exclusion du concours.

Il vous est interdit de quitter définitivement la salle d'examen avant le terme de la première heure.

Le présent document comporte 3 pages numérotées.

MINISTÈRE DU BUDGET
DES COMPTES PUBLICS
ET DE LA FONCTION PUBLIQUE

Tournez la page S.V.P.

Overview of Oracle Grid Architecture

Grid computing is a new IT architecture that produces more resilient and lower cost enterprise information systems. With grid computing, groups of independent, modular hardware and software components can be connected and rejoined on demand to meet the changing needs of businesses.
The grid style of computing aims to solve some common problems with enterprise IT: the problem of application silos that lead to under utilized, dedicated hardware resources, the problem of monolithic, unwieldy systems that are expensive to maintain and difficult to change, and the problem of fragmented and disintegrated information that cannot be fully exploited by the enterprise as a whole.
Benefits of Grid Computing Compared to other models of computing, IT systems designed and implemented in the grid style deliver higher quality of service, lower cost, and greater flexibility. Higher quality of service results from having no single point of failure, a robust security infrastructure, and centralized, policy-driven management. Lower costs derive from increasing the utilization of resources and dramatically reducing management and maintenance costs. Rather than dedicating a stack of software and hardware to a specific task, all resources are pooled and allocated on demand, thus eliminating under utilized capacity and redundant capabilities. Grid computing also enables the use of smaller individual hardware components, thus reducing the cost of each individual component and providing more flexibility to devote resources in accordance with changing needs.

Grid Computing Defined
The grid style of computing treats collections of similar IT resources holistically as a single pool, while exploiting the distinct nature of individual resources within the pool. To address simultaneously the problems of monolithic systems and fragmented resources, grid computing achieves a balance between the benefits of holistic resource management and flexible independent resource control. IT resources managed in a grid include :
■ Infrastructure: the hardware and software that create a data storage and program execution environment
■ Applications: the program logic and flow that define specific business processes
■ Information: the meanings inherent in all different types of data used to conduct business

Core Tenets of Grid Computing Two core tenets uniquely distinguish grid computing from other styles of computing, such as mainframe, client-server, or multi-tier: virtualization and provisioning.
■ With virtualization, individual resources (e.g. computers, disks, application components and information sources) are pooled together by type then made available to consumers (e.g. people or software programs) through an abstraction.
Virtualization means breaking hard-coded connections between providers and consumers of resources, and preparing a resource to serve a particular need without the consumer caring how that is accomplished.
■ With provisioning, when consumers request resources through a virtualization layer, behind the scenes a specific resource is identified to fulfill the request and then it is allocated to the consumer. Provisioning as part of grid computing means that the system determines how to meet the specific need of the consumer, while optimizing operation of the system as a whole.

The specific ways in which information, application or infrastructure resources are virtualized and provisioned are specific to the type of resource, but the concepts apply universally. Similarly, the specific benefits derived from grid computing are particular to each type of resource, but all share the characteristics of better quality, lower costs and increased flexibility.

Infrastructure Grid Infrastructure grid resources include hardware resources such as storage, processors, memory, and networks as well as software designed to manage this hardware, such as

databases, storage management, system management, application servers, and operating systems.
Virtualization and provisioning of infrastructure resources mean pooling resources together and allocating to the appropriate consumers based on policies. For example, one policy might be to dedicate enough processing power to a web server that it can always provide sub-second response time. That rule could be fulfilled in different ways by the provisioning software in order to balance the requests of all consumers. Treating infrastructure resources as a single pool and allocating those resources on demand saves money by eliminating under utilized capacity and redundant capabilities. Managing hardware and software resources holistically reduces the cost of labor and the opportunity for human error.
Spreading computing capacity among many different computers and spreading storage capacity across multiple disks and disk groups removes single points of failure so that if any individual component fails, the system as a whole remains available.
Furthermore, grid computing affords the option to use smaller individual hardware components, such as blade servers and low cost storage, which enables incremental scaling and reduces the cost of each individual component, thereby giving companies more flexibility and lower cost.
Infrastructure is the dimension of grid computing that is most familiar and easy to understand, but the same concepts apply to applications and information.

Applications Grid Application resources in the grid are the encodings of business logic and process flow within application software. These may be packaged applications or custom applications, written in any programming language, reflecting any level of complexity. For example, the software that takes an order from a customer and sends an acknowledgement, the process that prints payroll checks, and the logic that routes a particular customer call to a particular agent are all application resources.
Historically, application logic has been intertwined with user interface code, data management code, and process or page flow and has lacked well-defined interfaces, which has resulted in monolithic applications that are difficult to change and difficult to integrate.
Service oriented architecture has emerged as a superior model for building applications, and service oriented architecture concepts align exactly with the core tenets of grid computing. Virtualization and provisioning of application resources involves publishing application components as services for use by multiple consumers, which may be people or processes, then orchestrating those services into more powerful business flows. In the same way that grid computing enables better reuse and more flexibility of IT infrastructure resources, grid computing also treats bits of application logic as a resource, and enables greater reuse of application functionality and more flexibility in changing and building new composite applications.
Furthermore, applications that are orchestrated from published services are able to view activities in a business as a single whole, so that processes are standardized across geography and business units and processes are automated end-to-end. This generates more reliable business processes and lowers cost through increased automation and reduced variability.

Information Grid The third dimension to grid computing, after infrastructure and applications, is information. Today, information tends to be fragmented across a company, making it difficult to see the business as a whole or answer basic questions.about customers. Without information about who the customer is, and what they want to buy, information assets go underexploited.
In contrast, grid computing treats information holistically as a resource, similar to infrastructure and applications resources, and thus extracts more of its latent value.

Source :
Oracle® Database
Concepts
10g Release 2 (10.2)
B14220-02