enjoy
the virtualization
with bull Escala servers

Bull
atos technologies

In a rapidly evolving marketplace, the performance of businesses and public sector organizations depends more than ever on information systems. The explosion in demand for computing power and the widespread growth of mobility are fundamental transformations driving a gradual revolution in the IT ecosystem.

Its ability to address these needs means that UNIX® has established itself as a benchmark environment. And with bull Escala™, Atos offers a comprehensive range of AIX® and Linux®-compatible servers, along with a wide choice of ISVs and open source software solutions. As a result of the partnership with IBM, Escala servers offer a platform that is especially well suited to consolidation-led approaches and mission-critical applications that require faultless service continuity.

Now enriched with new functionalities, especially designed for OpenStack-based environments - featuring fast VM provisioning, automation, self-service portal, workflow integration - the Escala family transforms your IT facility into an open-standard Cloud solution.

Enjoy all the benefits of virtualization

bull Escala servers from Atos provide innovative solutions for business applications (ERP, analytics, big data...) and database environments. Escala brings you the power and flexibility of POWER™ / AIX® / Linux® servers, offering a unique choice of services and solutions to build cost-effective but secure infrastructures.

Servers built for performance

The Escala range offers cost-efficient scale-out as well as highly scalable and modular Enterprise servers, providing

- A wide array of **AIX Open Source Linux-based solutions** for Application Servers, databases, big data and analytics solutions
- **Unmatched Performance and leading TCO:** Power has earned a reputation for being the most powerful and scalable server architecture. Today Power8 provides highly efficient SMT threading (8 threads per core) as well as best in class IO and memory bandwidth – which makes it the ideal choice for Database, Java and Big Data solutions. However, and most importantly to many customers, the leading per 'core' performance provided by Power8 helps to optimize SW license costs
- **Outstanding reliability track record:** Escala provides the market most sophisticated RAS features which are deeply integrated into servers. The usefulness and functioning of the features are often difficult to explain, however the measured uptime figures collected among Escala customers speak to themselves: Today on a statistical average, Escala midrange provides a meantime between fatal crashes well above 50 years – in standalone configurations

- **Advanced virtualization**: PowerVM™ provides advanced virtualization functions such as Live VM mobility, Active Memory Expansion, Shared Storage and Shared Processor Pools and many more. The virtualization layer serves as base for the integration into OpenStack cloud environments.
- **Flawless security:** due to the deep HW and Firmware integration of the virtualization architecture, PowerVM today provides an industry leading track record for what concerns security. Although already available on the market since more than 10 years, no security vulnerabilities have been reported to date.

Escala makes IT infrastructures easier to manage and less costly to run. They adapt to changes in your business needs in real time. Escala gives you the power of choice.

A unique cooperation in the IT world

For more than 20 years, bull, who joined Atos, and IBM have built a unique relationship, based on an OEM (Original Equipment Manufacturer) partnership and close, highly productive technological cooperation. This solid collaboration has fundamentally strengthened the AIX® ecosystem, by regularly generating innovative functionality, especially around virtualization.

Most notably, Atos engineers developed AIX® multiprocessor functions, such as the SMP architecture, which has enabled the POWER™/AIX® systems to achieve market-leading performance on a regular basis. Atos UNIX experts also contribute to the writing of IBM Redbooks on the Advanced POWER Virtualization.

Escala servers have become the benchmark platform for the implementation of mission-critical environments and virtualization, with a clear long-term roadmap. A true culture of commitment and technological excellence are the key to success; as clearly demonstrated by the fact that AIX® is today the leading UNIX on the market place. As a result, many non-AIX UNIX customers have chosen to migrate to Escala.

A complete and homogeneous range

Available in rack and tower formats, all Escala models, from the simplest to the most sophisticated, have the same advanced virtualization functionalities. Every Escala server is based on a common operating system, processor and firmware, in either a scale-up or a scale-out architecture.

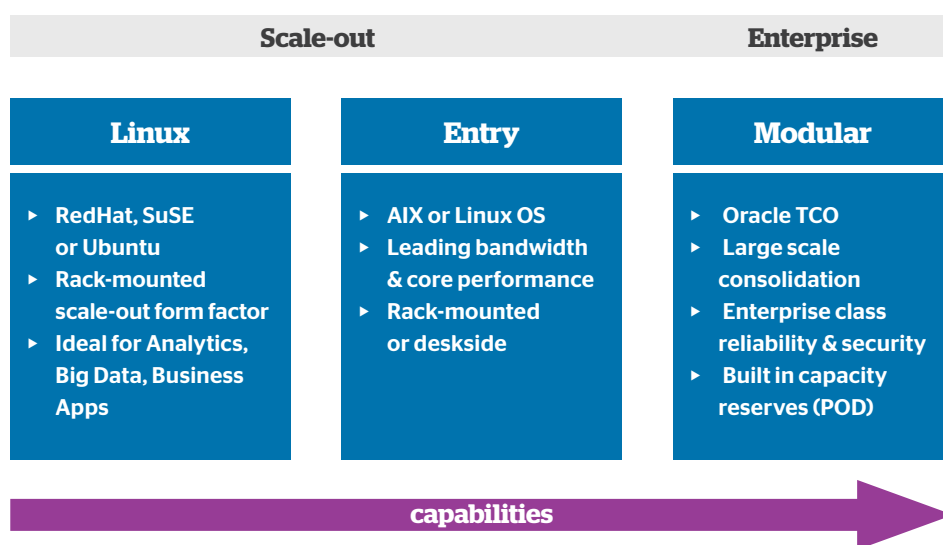## A scalable, high-performance and high availability architecture

The Escala range consists of servers based on multi-core POWER™ processors. It is designed for AIX® and Linux environments, providing unique performance levels. Its on-demand power system makes Escala highly flexible, since only the resources actually needed are used, while the others remain in stand-by mode. The latest innovations in terms of virtualization, with PowerVM™, such as VM mobility between servers, enable extensive rationalization of architectures. By cutting down operational costs and power consumption, Escala servers meet both the economic and environmental challenges of the Data Center.

The escala range consists of:

▸ **Escala Enterprise servers** Designed for Data Center rationalization, Escala Enterprise servers offer modularity, scalability, performance and energy efficiency, while also guaranteeing the highest levels of RAS/ availability features and security for AIX® and Linux applications. All this power delivers unprecedented scope for virtualization.

▸ **Escala scale-out servers** Cost effective, affordable servers designed to take full advantage of the performance and reliability inherent in AIX® and Linux, whether the servers are used for databases, analytics, big data, or Java applications.

Escala and OpenStack cloud integration

OpenStack Cloud integration: The PowerVC management solution turns Escala VMs, Storage and virtual networks into a OpenStack based IAAS cloud solution. PowerVC groups multiple physical servers into managed pools, greatly simplifying the creation and deployment of AIX and Linux VMs. Features like Snapshots and cloning reduce the average deployment time of applications from several hours to just a few minutes. Automation can be integrated or triggered by popular open source tools such as Chef or Puppet.

openstack
CLOUD SOFTWARE

Scale-out		Enterprise
Linux	**Entry**	**Modular**
▸ RedHat, SuSE or Ubuntu ▸ Rack-mounted scale-out form factor ▸ Ideal for Analytics, Big Data, Business Apps	▸ AIX or Linux OS ▸ Leading bandwidth & core performance ▸ Rack-mounted or deskside	▸ Oracle TCO ▸ Large scale consolidation ▸ Enterprise class reliability & security ▸ Built in capacity reserves (POD)

capabilities →

Maximizing quality of service thanks to Escala solutions

Atos has developed unique expertise in active and unified monitoring solutions for customer infrastructures, ensuring that they operate in 24×7 mode. These services include alerts, dashboards and expert recommendations.

It involves analyzing the impact of business workload and system operations. In particular these operations are imposed by the operating conditions for an intensively shared, centralized internal document management and tracking application. The goal is to identify opportunities to optimize the end user experience.

By establishing a direct and explicit link between the user experience and technical performance, active monitoring and unified monitoring not only help IT Departments and Operations Managers to meet their commitments, but to do so from a truly service-driven perspective: by being deliberately focused on customers.

Application Roll over Facility (ARF)

ARF is an HA and Disaster recovery solution designed by ATOS for AIX. Continuously enhanced since more than 15 years, ARF has won a large and loyal customer base due to its focus on 'ease of use' and its mature and proven clustering technology. The 'simple but reliable' philosophy of ARF helps to reduce administration complexity, the risk of human errors as well as installation and training costs. Compared to competing products, ARF is also known for being a very cost efficient solution – which offers an easy to maintain 'per node' pricing model. ARF is compatible with most

of the leading storage and disaster recovery solution and is constantly enhanced in order to keep up with new products and developments in this area.

Optimal Database Booster (ODB) to speed-up Oracle DB applications

Optimal Database Booster is designed & developed by Atos in order to accelerate OLTP applications with high read activity, reduce batch times and boost analytical applications. Based on innovative & intuitive GUI, it provides an easy identification of I/O bound DB objects and helps admin to move DB objects to the most appropriate storage. ODB is a non-intrusive solution and helps to preserve investments without impacting existing infrastructure (HA, backup, management ...). ODB does not require application code changes, furthermore it offloads SAN workloads.

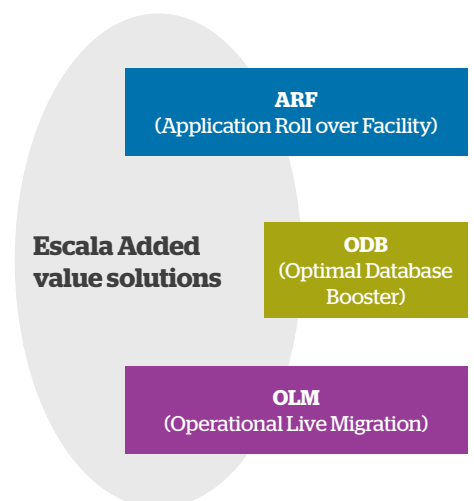## Operational Live Migration (OLM)

Operational Live Migration is designed & developed by Atos for Oracle DB migrations between heterogeneous platforms to reduce migration costs, manage business continuity risk and compensate lack of skills & resources. OLM is based on a 3 step migration project:
▸ The analysis phase aimed to get an overview of the customer's operational

needs / constraints and a global view of infrastructure environment (servers, network, database...).
▸ The migration plan is aimed to build the best strategy and the timeframe for migration
▸ The implementation & test phase aimed to validating the new environment, and providing additional services/ tuning.

The OLM tool leverages Escala technologies to achieve better performance and cost reductions in an Oracle database environment.

ARF (Application Roll over Facility)

Escala Added value solutions

ODB (Optimal Database Booster)

OLM (Operational Live Migration)

A comprehensive ecosystem

From manufacturing to integration and outsourcing, Atos combines the resources and know-how to assist clients in controlling complex, heterogeneous infrastructures, with access to very high levels of expertise within the Atos Competence Centers.

Leveraging a long-lasting expertize in large systems and Data Centers, Atos business technologists:

- Provide best-in-class maintenance and support services for mission-critical applications,
- Provide consulting, supervising, monitoring, capacity planning and high availability services, remotely and in SaaS mode, thanks to Service Assurance (SA),
- Assist customers in mastering new technologies with Atos Managed Services and outsourcing,
- Provide customized and World Class IaaS services on Escala with AIX on Demand (AoD), an Atos offer

Competence centers to demonstrate the performance of target architectures

Experts from Atos Competence Centers help organizations, software vendors and system integrators to design and implement solutions and infrastructures. They are dedicated to helping customers optimize and improve the performance of their infrastructures in many areas, including databases, analytics, big data, ERP, consolidation and Cloud computing. The Atos Competence Centers provide facilities to set up and validate target architectures in real-life conditions, for a reliable transition to consolidated and virtualized environments.

Atos Competence Centers provide a range of services covering the entire life-cycle of your architecture:

- Performance optimization
- Sizing
- Benchmarking and prototyping
- High-availability solutions

- Database performance optimization and tuning
- Validation of applications from ISVs
- Architecture consulting.

These services can be supported by Atos' logistics and manufacturing hub in Angers, France, whose role is to implement infrastructures in terms of manufacturing, offering all the necessary security guarantees and taking into account the specific customers' needs.

Leading support and maintenance services

ATOS provides leading support and maintenance services for AIX/Linux Power based systems, to currently more than 600 customers world-wide. ISO9001 and ITIL compliant processes, world class logistics and spare part management combined with nearly 25 years of AIX/Power experience are the backbone which enables highest levels of SLA's on Escala infrastructures. ATOS maintenance services cover the products of key Datacenter solutions providers - EMC, NetApp, StorageTek, Brocade and many others – ensuring trouble-free 'one-stop' multivendor support solutions. Atos is proud to receive a 93% satisfaction rate on Maintenance Services from its European customers (satisfied or very satisfied).

Service Assurance

Today, in the context of digital business transformation, everything points towards the need for IT Departments to implement best practices, to ensure that IT service levels are always met and adapt continuously to business needs. To achieve this, Atos offers end-to-end monitoring, support and operational

maintenance services for mission-critical IT to help IT Departments guarantee the availability and performance of their infrastructures and facilities, including Escala servers.

These guarantees – named Service Assurance – ensure real-time total visibility of all elements of the infrastructure and applications, encourage greater integration of service processes and provide all the necessary expertise to help IT Departments achieve the service quality levels that the business expects.

Service Assurance offering consists of a portfolio of value-added services delivered remotely and in SaaS mode, available on Escala servers.

- Consultancy services and expertise to guarantee the compatibility and scalability of infrastructures throughout the lifecycle of various components
- Unified system supervision, monitoring and control services for Data Centers and energy management, to guarantee performance
- High availability services
- Capacity planning services

Atos Managed Services and outsourcing

For customers who would like to outsource the administration or the entire operation of their Escala servers, Atos Server Managed Services offer a wide range of solutions, reaching well beyond classical outsourcing models.

Atos Server Managed Services offer a comprehensive capability, from basic operational and infrastructure support to additional value-added options supporting the need, as an example, for additional security and high availability. The services are designed to make best use of other managed services.

Atos is an experienced specialist in both outsourcing and selective Business Process Outsourcing.

Through its industrial service centers, Atos proposes secure hosting facilities of Escala servers and on-demand power, as well as 24/7 monitoring and management services.

Atos offers a full service package for Escala environments:
▸ Maintenance for AIX applications,
▸ Service desk user support and hotline operation,
▸ Guaranteed service levels with fixed problem resolution times,
▸ Maintenance of the current technological state of the art.

Atos can also manage and transform all the IT operations and AIX production environments of its clients.

AIX on demand

Atos AIX on Demand (AoD) is a virtualized Infrastructure, fast and directly available. Based on bull Escala servers, it is aimed at providing World Class AIX IaaS Services to Atos customers.
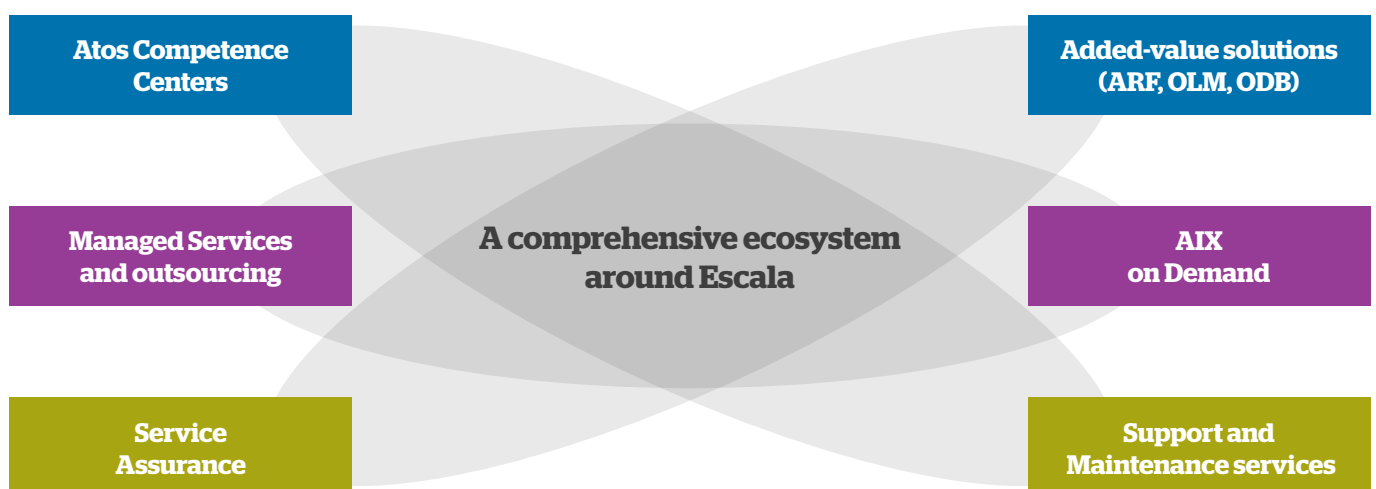
AIX on Demand can be summarized by: 'Pay per Use & Grow as you Go'. It allows cost reduction and active partnering, whilst ensuring full compliance to legal and security demands.

Atos AIX on Demand is a scalable solution, which prevents CAPEX and allows customers to pay on a monthly basis. They are charged depending on their consumption, without fixing any contract duration.

AIX on Demand is a valuable alternative to unprofitable investments associated with application migration. Its cost is based on Cloud level, and is positioned as at least equal or even better than x86 clouds. It provides flexible and faster deployment, easy on-boarding and burst capacity.

Prepare for your future infrastructure, right now

Atos Customer Briefing Centers located in Grenoble, Paris and all over Europe, welcome customers and prospects to come and discuss their needs with Atos' best AIX and Linux experts and Solution Architects, and find out more about best practices and case studies featuring bull Escala platforms.

Atos Competence Centers		**Added-value solutions (ARF, OLM, ODB)**
Managed Services and outsourcing	**A comprehensive ecosystem around Escala**	**AIX on Demand**
Service Assurance		**Support and Maintenance services**

About Atos

Atos SE (Societas Europaea) is a leader in digital services with revenue of €10 billion and 86,000 employees in 66 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Security solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defence, Financial Services, Health, Manufacturing, Media & Utilities, Public Sector, Retail, Telecommunications and Transportation.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and is listed on the Euronext Paris market. Atos operates under the brands Atos, Bull, Canopy, Worldline, Atos Consulting and Atos Worldgrid.

For more information, visit **atos.net**

About Bull, the Atos technologies for the digital transformation

Bull is the Atos brand for its technology products and software, which are today distributed in over 50 countries worldwide. With a rich heritage of over 80 years of technological innovation, 2000 patents and a 700 strong R&D team supported by the Atos Scientific Community, it offers products and value-added software to assist clients in their digital transformation, specifically in the areas of Big Data and Cybersecurity.

Bull is the European leader in HPC and its products include bullx, the energy-efficient supercomputer; bullion, one of the most powerful x86 servers in the world developed to meet the challenges of Big Data; Evidian, the software security solutions for identity and access management; Trustway, the hardware security module and Hoox, the ultra-secure smartphone. Bull is part of Atos.

For more information, visit **bull.com**

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