



Linux @ IBM

Services for a Successful Linux Implementation

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IBM invests in Linux

- **IBM is here to support Linux at every step of the way on its remarkable journey**
- **We've already dedicated \$1 billion to Linux development and will invest more than \$300 million in Linux services over the next three years**



IBM leadership supports Linux services

- **“Companies are done kicking Linux’s tires, they're excited about its power and performance promises, and they're now ready to deploy it. But because Linux is a ‘disruptive technology’, with new, unique features and capabilities, the availability of support services will be key to implementing and running seamless Linux operations. IBM has pledged to customers that we will deliver the solutions and services for every step of the way.”**
 - Patricia Gibbs, Vice President, Linux Services, IBM Global Services**

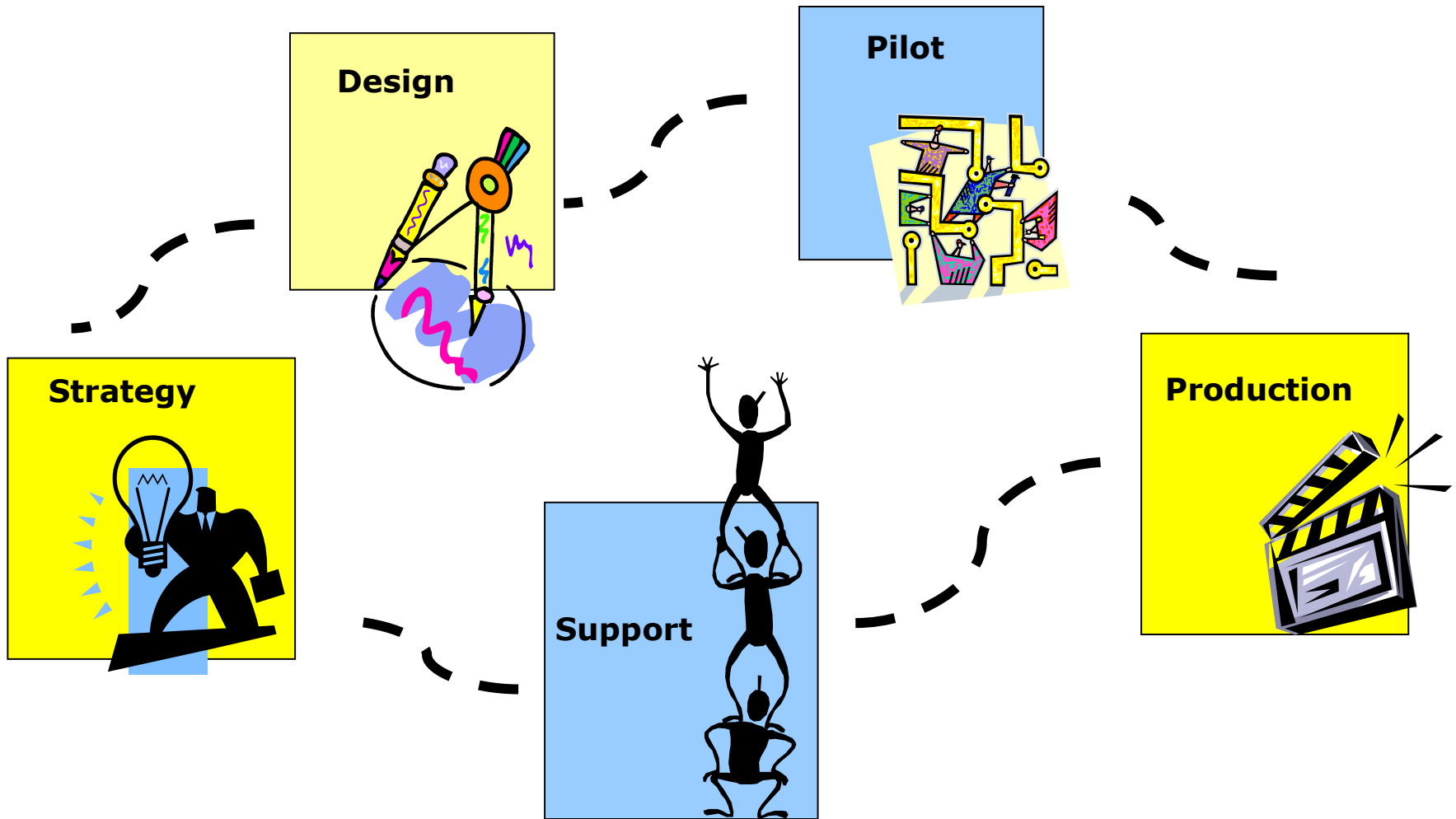


Experts say services are the difference

- **“Providing clients with a solution stack that would embed hardware, software, and the entire portfolio of services from strategic assessment to planning, implementation, change management, training, support, and potentially outsourcing tailored to specific industry segments, would be a powerful value-added offering that would justify client investment.”**
 - **Assessing the Opportunities for Linux Services, IDC Report, 5/2003**



The Linux adoption cycle





Strategy

- A customer is faced with the need to reduce costs, be more competitive, enhance IT performance





Linux: not just another operating system



- **Some of the reasons why Linux is a game-changer and a “disruptive technology”**
 - Open Source
 - Significant advantages: cost, reliability, security, flexibility
 - Greatly improves the possibilities for integration
 - Significant opportunities for scaling
 - Potential step toward Grid computing, e-business on demand



Effective Linux adoption starts with strategic planning and exploration of expectations, requirements



- **What are we trying to accomplish as an organization?**
- **Can our current resources support those goals?**
- **How can Linux make a measurable difference?**
- **Where do we need to make changes?**
- **Activities**
 - Conduct workshop to:
 - Define business objectives
 - Document IT environment
 - Discuss approaches: In-house? Outsource? Outtask?



Linux strategy workshop

- **A short, cost-effective, customized engagement designed to help you get started or move to the next level of Linux**
 - 1) High-level Linux strategy
 - With recommendations that may be used right away
 - 2) Linux initiatives
 - Defined and agreed upon, based on business and IT goals
 - 3) Action plan
 - Provides phases with supported milestones and timelines
 - 4) Linux knowledge
 - Increases awareness and information
 - 5) Validation
 - Demonstrates the advantages of Open Source solutions



Grid innovation workshop

- **Customized workshops to learn how grid computing can impact your organization**
 - Executive Session
 - Half-day introduction to grid computing architecture and technologies
 - Introduces value, business possibilities grid can enable
 - Identify potential opportunities for implementing grids
 - Facilitated Sessions
 - On second day, sessions held within the identified opportunity area
 - Assess current state
 - Establish vision of how grid could be applied
 - Validate findings and select targeted pilots
 - Innovative Workshop
 - Gain understanding of how networking and harnessing the valuable resources of distributed systems can be a cost-effective mechanism for evolving your business



Design

- Customer begins to architect Linux solutions, explore best practices, get under the covers





Workshop results define which path is most appropriate



- **What additional system, network and application resources are required?**
- **Which configurations will address requirements?**
- **Will integration with legacy systems work?**
- **Activities**
 - Review application portfolio for Linux enablement
 - Assess servers for underutilization, over-population
 - Design a secure solution that meets business and IT needs
 - Launch a proof-of-concept to support design



Application portfolio review



- **Review your infrastructure of applications, including new and legacy systems, for migration to Linux environment**
 - Take a portfolio view of your applications
 - Review business and technical aspects for functional alignment
 - Identify issues of redundancies, inefficiencies, complications
 - Create a plan that prioritizes applications that can be ported
 - Recommend plan of action for those application that need to be developed or rewritten



Our approach consists of the following steps



Understand Business Direction

Collect Key Business Drivers and Imperatives

Identify Major Business Initiatives

Identify Key IT Enablers

Determine Business Functional Needs

Understand Business Organization and Domains

Collect and Review Business Process Landscape

Establish Current and Future Functional Needs

Profile Portfolio of Major Systems

Establish Overview of Major Systems and Scope of Analysis

Formulate a Measurement Framework

Understand overview of IT Capability

Collect Portfolio Business and Technical Quality Data

Portfolio Analysis

Apply Portfolio Analysis Filters

Identify Portfolio Gaps, Redundancies, Conflict

Formulate Recommendations

Conduct Review & Validation Session

Develop Action Plan

Identify, define and prioritize specific efforts

Structure Linux roadmap and product platform options

Construct benefit and cost case model

Define risk mitigation approaches



Server consolidation study



- **When servers multiply, so do costs – for licenses, management, maintenance**
- **Consolidation can optimize utilization and have an overall positive impact of cost and performance**
- **We can provide expert analysis of your IT assets, system configurations, and utilization levels**
 - Evaluate current server infrastructure
 - Identify and evaluate opportunities for server consolidation
 - Match server consolidation alternatives to strategic and technology goals
 - Provide recommended models



Linux security services



- **The good news: Linux and open source are reliable, stable – and secure; and we have a suite of services to help you ensure your organization plans well, and stays safe**
- **These involve people, process and procedures as well as technologies**
 - Enterprise Security Architecture
 - System Security Assessment
 - Linux Security Implementation Services
 - Ethical Hacking



Proof of concept



- **To test the validity of a Linux architecture project and demonstrate the functionality of a design**
 - Design a solution, or piece of a solution
 - Establish location for proof of concept, either at client location or appropriate IBM center
 - Put design through testing within the confines of the proof of concept
 - Review results
 - Make any adjustments for future pilot or production



Technical training services for Linux

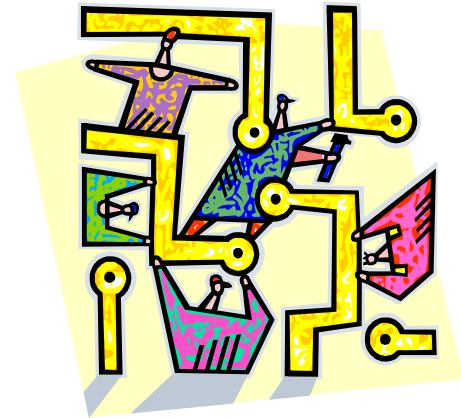


- **Your pace, at your place, with online courses, or visit one of IBM's training facilities to receive some of the industry's most comprehensive and sophisticated training available for Linux**
- **Linux courses include:**
 - Linux basics, integration, systems administration
 - Linux certification for Red Hat
 - IBM ~ system Linux installation
 - Courses for embedded and real-time Linux added, as well as for clustering and security



Pilot

- **Solutions are put to the test, with small trials, to see how they will function in their new Linux environment**





Pilot engagements help provide sense of confidence, documentable data



- **How will this really affect our operations?**
- **What are the issues we can deal with on a small scale first?**
- **Where can we tweak the plan?**
- **Activities**
 - Do it in real time
 - Document the performance
 - Develop any adjustments to the strategy or design
 - Deliver a success that can be translated into production



Production

- Full-scale production of the solution gets underway





The Linux implementation phase takes effective project management and skilled integration capabilities



- **How can we best expand our pilots into full scale production?**
- **Will our stakeholders be positively affected by the changes?**
- **Have we mitigated as much risk as possible?**
- **Activities**
 - Determine project resources
 - Deliver all planned-for applications, systems
 - Deploy with confidence



Systems migration: infrastructure



- **We can help you migrate, install and configure all hardware and other elements as required for a successful Linux implementation**
 - Site/rollout services for physical migration
 - Systems management services to enable stability, resilience
 - Cluster services to help you create commercial, high-performance clusters
 - Performance management and capacity planning services for efficient operations



Systems migration: application porting



- **After application review has determined which applications can be successfully ported to Linux, we can engage one of our established “assembly lines” worldwide for a more rapid, cost-effective porting**
 - Determine the IBM porting center that will host the migration activity
 - Run deeper assessments on the application code
 - Complete actual porting
 - Test of application porting with functional and performance testing



Linux application development



- **For those applications that, for one reason or another, cannot be safely ported to the new Linux environment, application development is always an option**



Linux Virtual Services



- **Cost-effective, managed server capacity on demand allows you to get what you need, when you need it without the upfront capital expense**
- **Replace server sprawl with “virtual servers” running Linux on IBM ~ zSeries in a secure hosting environment**
- **Pricing and packaging**
 - Service units sized based on average workload over 24-hour period
 - 10% additional “burst” capacity included at no extra charge
 - Service units include server, floor space, power, and management services
- **Total Cost of Ownership (TCO)**
 - Customer savings can range from 20% to 55% on typical workloads



Support

- **Remote technical support, as well as consulting support can be provided to ensure the solution works as planned**





Enterprise-grade support is available for Linux -- as it is for all other operating systems, at similar levels

- **How can we maintain availability and reliability?**
- **What are the obstacles to achieving the performance gains we anticipated?**
- **Who has the greatest knowledge and resources to handle break/fix, other issues?**
- **Activities**
 - Design technical support program around the requirements of the business
 - Document and report defects, fixes
 - Deliver unparalleled access to open source community resources





SupportLine for Linux and Linux Clusters

- **Remote technical support that helps you increase productivity through efficient problem solving**
- **With SupportLine, you get the advantage of industry-leading Linux expertise for your multi-vendor environment – all from a single source, backed by the resources of the Open Source community**
 - Defect support, including workarounds and fixes for the Linux kernel and most open source, business-critical distribution components
 - Configuration questions; Sample configurations
 - Analyze kernel crash dumps and application core dumps
 - Assist in solving migration problems and interpretation of documentation





IBM alliances with Linux distribution partners

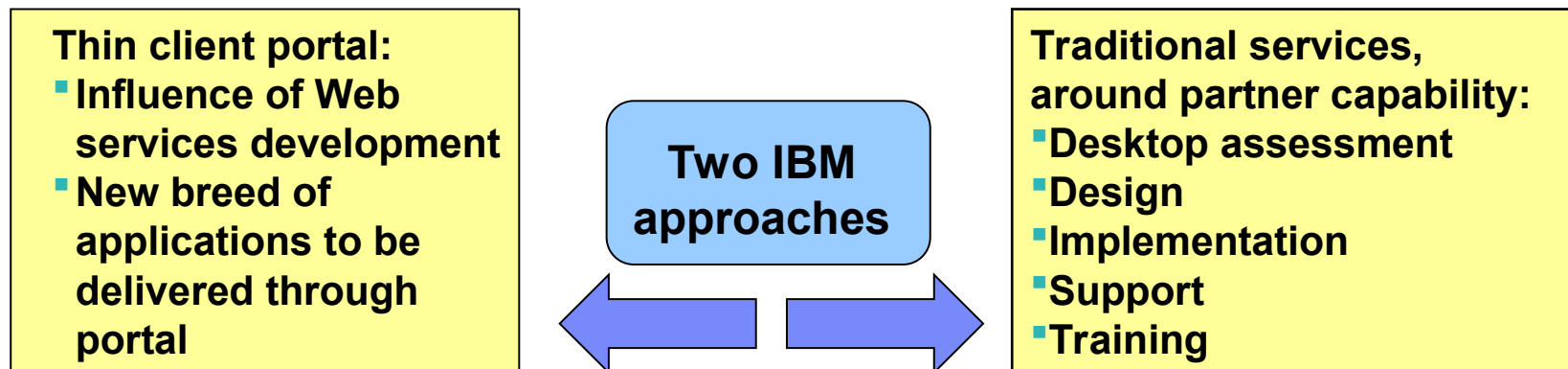
- **Customers can opt for unparalleled Red Hat or SuSE remote technical support from IBM when they purchase their Linux distribution from either Red Hat or SuSE**
 - Red Hat alliance includes a reseller agreement – customers may purchase the full suite of Red Hat products from IGS
 - SuSE alliance includes a reseller agreement – customers may purchase SLES from IGS
 - Cross-platform support of IBM ~ brands for either Red Hat or SuSE distributions





Linux desktops are the next frontier for IBM

- **The market is growing beyond the engineering workstation, and customers have articulated key needs:**
 - Alternative to Windows and proprietary license fees
 - Distributed environment
 - Lower TCO – both solution deployment and ongoing operating costs
 - Reliability issues





Case Studies

- **Real-life stories about companies who have taken the leap into Linux**



E*TRADE



■ Challenge

- E*TRADE, largest online broker, looking for cost savings through infrastructure solution
- Large Sun installation had been purchased to handle expected exponential growth in trading volume
- Trading volume never materialized, putting extreme pressure on operational cost model

■ Solution and Benefits

- IBM migrates Tuxedo application servers from Sun to Linux on xSeries
- 100+ Sun servers displaced by IBM Intel servers. Substantially lower operational cost without minimizing scalability – customer estimates IBM servers are 4X faster



Mobil Travel Guide



■ Challenge

- Construct an online support network for high-end travelers, believed to be the first Web site providing everything needed to plan an upscale leisure auto trip

■ Solution and Benefits

- Linux Virtual services – e-business on demand managed hosting
- Flexible, scalable testing and production environment for customer's Linux-based applications and databases
- zSeries running Linux and IBM WebSphere software, with IBM Global Services



Lawson Stores



■ Challenge

- Expand customer self-service, retail Internet applications
- Countrywide deployment to over 7,000 convenience store locations

■ Solution and Benefits

- 15,000 IBM xSeries servers running Linux displacing Microsoft platforms
- Multimedia kiosks
- Two servers per store
- IBM Global Services service and support
- Distributed, replicated applications that easily deploy through the retail chain
- Lower costs, improved application capacity and performance



Konica Business Technology



■ Challenge

- Establish a scalable platform, through server consolidation, to support Web application growth
- Provide easier Web environment management and reduce operating costs

■ Solution and Benefits

- Linux running on IBM zSeries, IBM TotalStorage Enterprise Storage Server
- IBM Global Services Strategic Outsourcing provided total solution and Web development
- Decreased operating costs and maintenance resource requirements
- Consolidated, highly scalable platform without need to add servers



Renaissance Technologies

Renaissance
Technologies



■ Challenge

- Required a more robust and better price-performing hardware platform to run quantitative algorithms

■ Solution and Benefits

- 32-node IBM xSeries Linux clusters, cluster consulting, integration and customization services, technical project management services
- Provides true freedom and portability, along with linear horizontal scalability to increase the quantity of work and further enhance the company's financial performance
- Substantially better performance, price and floor space savings compared to competition



Lehman Brothers



■ Challenge

- Reduce costs while optimizing the IT environment for its business-critical e-trading, derivative and risk applications that require extensive computing power. Quality, performance key

■ Solution and Benefits

- Linux selected for lower TCO, better performance, greater scalability and increased portability of applications in multi-vendor environment
- Proof of concept, Solaris-to-Linux porting, Red Hat Linux on xSeries servers, support



Pearson Publishing



■ Challenge

- Pearson needed a technical solution for its SAP rollout and wanted an open, scalable solution that offered good price and performance ratios

■ Solution and Benefits

- Impressed with IBM's commitment to Linux, Pearson chose to run its SAP application on approximately 40 xSeries servers
- These servers, which run Linux Red Hat, were configured in clusters using xCat using IBM Global Services implementation services and technical project management



Air New Zealand: Flying High with Linux



■ Challenge:

- Reduce TCO tied to IT cost and complexity based on industry-wide cost constraints
- Scale 150 Compaq servers down to one zSeries 800 server running Linux

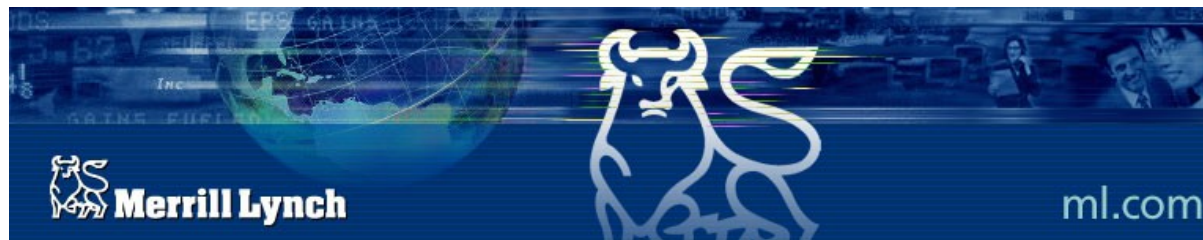
■ Solution and Benefits:

- Potential savings of NZ\$600,000 in licensing fees
- Move from 4,000 Microsoft Exchange e-mail, file and print clients to Bynari
- Eliminate purchase of 150 additional Compaq servers in next 12-15 months
- Overall TCO on mainframe is 30% less when compared to Compaq
- Reduce administrative burden on IT staff
- Expedite application development/implementation because mainframe can now run numerous operating systems simultaneously



Linux Provides Choice, Competitiveness

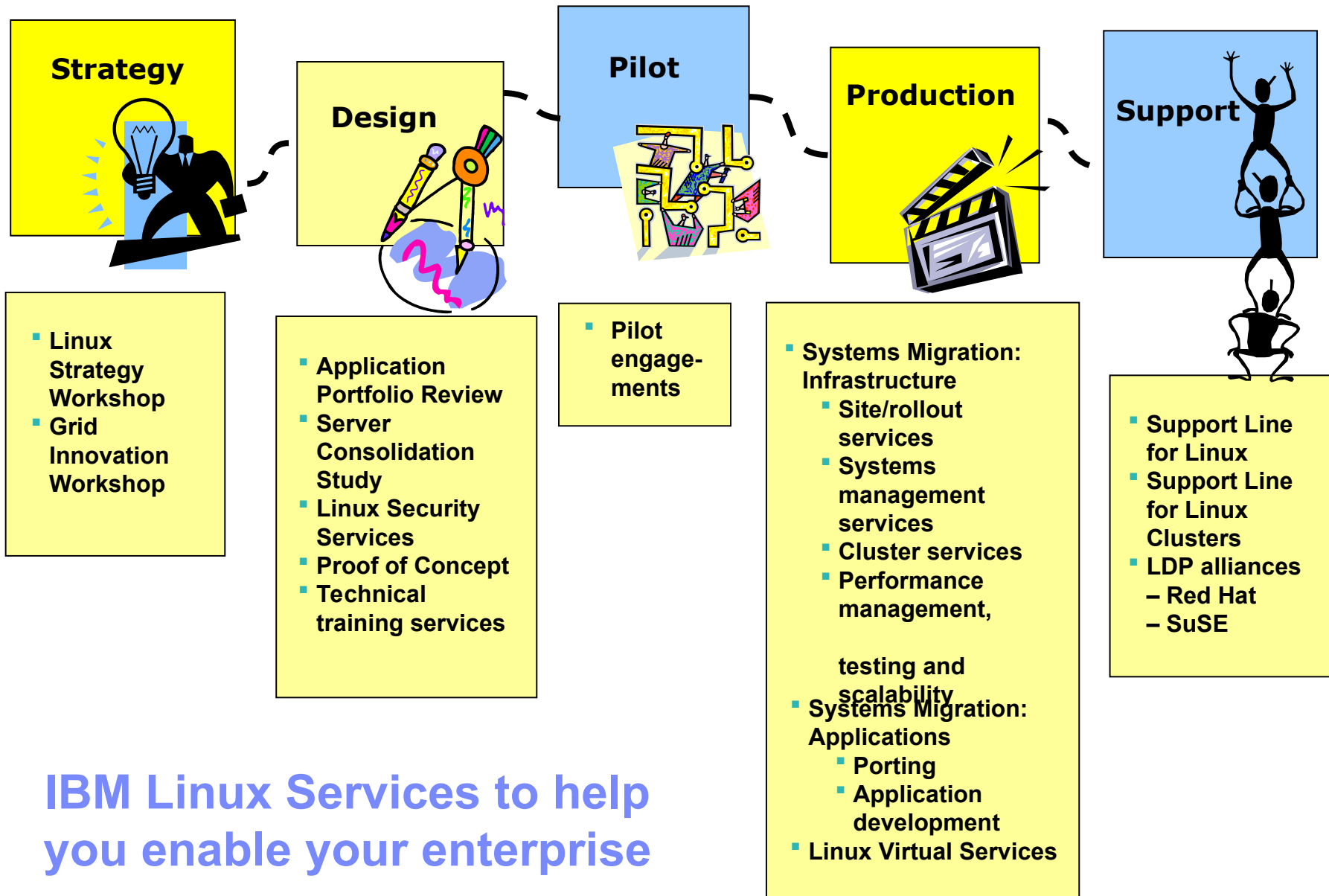
- **“I always want to have the right competitive dynamics. That's why we focus on Linux. Riding that wave will give us choices going forward.” says John A. McKinley Jr., executive vice-president for global technology and services at Merrill Lynch & Co., which runs some key securities trading applications on Linux.**
 - Quoted in Business Week, “The Linux Uprising,” February 2003





Why IBM Linux Services?

- **Experience**
- **Embraced by the Open Source community**
- **Expertise**
- **End-to-end portfolio**



IBM Linux Services to help you enable your enterprise



Linux: Ready for the Enterprise

- **Reduces customer costs**
- **Increases freedom of choice**
- **Fosters innovation**
- **Promotes a culture of open standards**
- **Rewrites the rules for operating systems**

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