

Bulletin

IDC Proposes High Availability/Mission Critical Support Checklist for Software Vendors

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IDC Opinion

What are the key issues that software vendors must consider in order to design and/or build a high-availability/mission-critical (HA/MC) service and support infrastructure, and what are the essential elements that must be considered as central to that initiative?

Independent software vendors (ISVs) will increasingly position their firms to offer, deliver, and support high-availability/mission-critical (HA/MC) support services targeted specifically at the discrete software environment, perhaps as a more highly targeted “subset” program to the currently positioned HA/MC “system” environment contracts available in the marketplace. These HA/MC offerings may involve enhancing currently positioned “premium-type,” “gold-type,” or “platinum-type” support offerings, or they may be built from scratch. In either case, however, ISVs must consider a range of issues when designing and building the framework for such offerings. This bulletin provides a comprehensive checklist of elements that IDC believes are crucial for understanding and structuring an intelligent framework on which HA/MC services may be offered and delivered by the ISV community.

What Are High-Availability Services?

High-availability services are designed to ensure maximum uptime for a customer's application and application server environment, often extending into the network infrastructure. High-availability services are defined in the context of mission-critical requirements. These services typically include planning, implementation, operational and support services, and training for IS personnel.

The focus of high-availability services is on service and support for the networked server environment, rather than for a standalone system, and on continuous, proactive service and support, rather than on reactive, deferred remedial service and support. This level of service is characterized by a dedicated customer account team, the option of permanent on-site engineers, sophisticated remote monitoring and diagnostics, configuration and installation planning and assistance, and often uptime or restore-time commitments and applications, located at the top of the stack. This level of service is typically sold to a customer running applications that need to be available on a 24 x 7 basis, and failure of these applications would result in measurable financial loss for the customer.

Why Build a High-Availability/Mission-Critical Infrastructure?

IDC believes that in the next millennium, all manner of IT service structuring will be fundamentally predicated on the concept of creating, delivering, maintaining, ensuring, and optimizing continuously available IT systems. As companies increasingly move to Web-based (ecommerce, eservice) business models and their very existence becomes dependent on a robust, 24 x 7 Web presence, it is imperative that IT services staff contemplate mission-critical elements at virtually every phase of development and fulfillment. In this context, the ramifications of not doing so could include:

- Loss of substantial revenue and revenue opportunities
- Loss of customers, goodwill, loyalty, and market share
- Decreased productivity, morale, and competitiveness
- Alienation of business partners

A number of vendors, including the following, have introduced services geared toward providing mission-critical computing:

- **Sun.** SunUP is a Sun-wide collaborative program among Sun, customers, and third parties to analyze, develop, implement, and manage services, infrastructure, and products to improve availability.

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- **Hewlett-Packard.** High Availability Observatory (HAO) is a suite of technologies, tools, and services that allows Hewlett-Packard (HP) to deliver high-availability support to mission-critical IT environments. In addition, HP's recent eservice initiatives are predicated on a fundamental high-availability conceptual structure on which all specific eservice offerings are built.
- **Unisys.** Unisys offers high-availability packages for Microsoft Windows NT-based servers, backed by a guarantee that users will experience no more than one unplanned hardware stop per year.
- **Oracle.** Oracle's recent introduction of its ExpertOnline, ExpertDetect, and ExpertDBA remote database management and monitoring technologies and service offerings represent targeted, discrete movements toward ensuring continuous availability within the context of a database environment. Further, this offering is supported by larger efforts within Oracle to build an organizational capacity and infrastructure for providing HA/MC service and support in a larger context (see *High-Availability Software Support: Oracle Pioneers an Emerging Frontier for Software Vendors*, IDC #20403, forthcoming).
- **StrataSource.** A new company, StrataSource is a dedicated IT services firm providing outsourced, primarily automated, HA/MC services targeted specifically at multivendor software environments that span the technology stack from operating system, database, middleware, and back- and front-office application layers.

IDC believes that vendors that provide end users with HA/MC services will enable these users to compete successfully on a global scale, and that these services will rapidly become a, if not *the*, top foundational and IT infrastructural priority for both ISVs and their customers.

IDC High-Availability Assessment Checklist

To establish a baseline for identifying and organizing the characteristics and components of software-centric high-availability programs, IDC created a high-availability checklist that outlines the principal categories that define the structure and framework of such a program (see Table 1). Each category, in turn, represents a range of elements comprising a program's specific features. These elements were identified through analysis and review of existing HA/MC offerings in the marketplace, interviews, and conferences with corresponding, existing, or prospective HA/MC service and support providers, in addition to independent analysis, evaluation, and use of internal proprietary IDC data.

Table 1
The IDC High-Availability Assessment Checklist

Category	Item Description	Check
High-availability service scope and coverage: Program objectives	<i>Scope:</i> End-to-end support of client IT environment Discrete support of partial IT segment	
	<i>Availability objective (subject):</i> Maximize availability (24 x 7) — IT environment Maximize availability (24 x 7) — application Maximize availability (24 x 7) — data	
	<i>Availability objective (uptime):</i> One nine (90%) Two nines (99%) Three nines (99.9%) Four nines (99.99%) Five nines (99.999%)	
	<i>Service mode:</i> Proactive, continuous service and support Reactive, deferred remedial service and support	
	<i>Service flexibility:</i> Customized, tailored service delivery Packaged, standardized service delivery	
High-availability service scope and coverage: Program positioning	<i>Service orientation:</i> IT environment focused Product focused Service focused Solution focused Methodology focused Industry focused	
	<i>Value proposition:</i> Maximize system performance Reduce total cost of operation (TCO) Prevent financial loss Meet client business requirements Help clients make smart business decisions Help clients achieve operational excellence Help clients succeed in their markets	
High-availability service scope and coverage: Service composition	Planning services Implementation services Operational services Support services Training services	

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High-availability service scope and coverage: Service coverage	<i>IT environment coverage:</i> Standalone system environment Intranetworked server environment Extranetworked server environment Internetworked server environment	
	<i>IT component coverage:</i> Applications Middleware and utilities Database software Networking software Operating system: Unix NT Linux Hardware system Peripherals Networking infrastructure	
	<i>Downtime scenario coverage:</i> Physical (hardware failure) Environmental (fire, flood, earthquake, etc.) Operational (process, security) Design (bugs)	
	<i>Industry coverage:</i> Manufacturing Telecommunications Consumer packaged goods Financial Energy and industrials High technology Internet-based businesses Other	

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Category	Item Description	Check
High-availability services portfolio: High-availability services criteria	<i>Positioning of consulting engagements:</i> Proactive Customized Packaged Solutions focused Flexible	
	<i>Consulting functions:</i> Interact with client Run performance tests Build custom scripts Assess preventive measures Assess masking and recovery mechanisms Perform system tasks Perform database administration tasks Other	
	<i>Consulting location:</i> On site Off site	
	<i>Tools used:</i> Proprietary tools Proprietary scripts Proprietary templates Backup/recovery tools Nonproprietary tools	
	<i>Engagement duration:</i> 1–3 months 4–6 months 7–9 months 10–12 months	

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High-availability services portfolio: High-availability services activities/deliverables	<i>Proactive services:</i> High-availability planning engagement components: High-availability readiness assessment Hardware/software/IT landscape assessment Configuration analysis Capacity planning Operational procedures scoping Staff and resident skill assessment Implementation plan GAP analysis Custom high-availability solution development Proof-of-concept analysis Other deliverables	
	<i>High-availability operating engagement components:</i> High-availability periodic system reviews High-availability performance management assessments: Establish benchmarks Assess performance or degradation Review methodologies for performance review of custom code Design and build performance and high-availability monitoring solutions Define key performance and availability indicators Assess performance response time Structure reporting and monitoring solutions Structure internal service-level agreements	
	<i>High-availability performance optimization services:</i> System availability optimization System performance optimization	
	<i>High-availability maintenance engagement components:</i> Testing services Monthly service activity reviews Backup and recovery reviews Scenario development Migration planning Patch certification, control, and pretesting Remote monitoring Architectural review Research and sharing of best practices	
	<i>Reactive services:</i> High-availability downtime response services High-availability post-downtime remedial services Disaster recovery reviews: Recovery time optimization Technology stack redundancy design Redundancy and validation methods assessment Fault injection testing	

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High-availability delivery and fulfillment criteria: General fulfillment capabilities	<i>High-availability service fulfillment elements:</i> Incident management Service-level management Availability management Change management Configuration management Capacity management Problem management	
	<i>High-availability environment competencies:</i> People Process Technology	
	<i>High-availability uptime commitment:</i> One nine (90%) Two nines (99%) Three nines (99.9%) Four nines (99.99%) Five nines (99.999%)	
High-availability delivery and fulfillment criteria: High-availability facility infrastructure	<i>High-availability support facilities:</i> High-availability support centers (number and location) Participating support centers (number and location) Multivendor support centers (number and location)	
	<i>Location strategy:</i> Proximity to client location Geography-, industry-specific high-availability expertise Remote connectivity and support leverage Existing facility utilization	
High-availability delivery and fulfillment criteria: High-availability multivendor support positioning	<i>Single point of contact positioning:</i> Principal vendor Partner Alliance member Other third party	
	<i>High-availability partnerships exist with:</i> System vendors Hardware vendors Application vendors Network vendors Service providers Other	
	<i>Other multivendor criteria:</i> Shared systems in place Partner review process in place Partner agreement exists with respect to: Account management Delivery and fulfillment Sustaining engineering	

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Category	Item Description	Check
High-availability delivery and fulfillment criteria: High-availability personnel resources	<i>High-availability account team structure:</i> Named support team Virtual support team Permanent on-site staff Focused account management	
	<i>High-availability account team composition:</i> Lead engagement business manager Lead technical manager Focused technical staff Industry-, product-knowledge support expertise Backup/reserve staff Multivendor staff Other	
	<i>High-availability account team qualifications:</i> Years of industry experience Years of IT experience Completion of high-availability certification tests	
	<i>High-availability staff level based on:</i> High-availability engagement planning Client volume Client demand Client requirements Industry convention Financial parameters Established minimums/maximums	
	<i>Other high-availability staffing criteria:</i> Clearly defined roles and responsibilities Periodic staff rotation Periodic service assessments Periodic performance assessments Periodic account reviews	
Technology and process infrastructure: Technology infrastructure	Call management tools Remote monitoring tools Diagnostic tools Self-healing/autocorrection tools Problem resolution tools Escalation/workflow systems	
	<i>Process management tools:</i> Cell phones Pagers Forwarding phones Other	
	<i>IT equipment/software for:</i> Mirroring/duplicating client environment remotely Replicating client problems Testing of proactive/reactive high-availability remedies Validating patches/fixes	

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Category	Item Description	Check
Technology and process infrastructure: Process infrastructure	<i>General process parameters:</i> Open on 24 x 7 basis Global delivery/fulfillment capability Dedicated phone hotline access Call pickup timelines established Call response timelines established Customized call flow: 24 x 7 coverage Privileged hardware/software hotline Assured 30-minute response time to critical calls Continuous effort for severity-one issue	
	<i>Client communication procedures exist for:</i> Problem notification Problem identification Progress notification (standard/custom) Problem resolution Fix notification	
	<i>Escalation procedures exist for:</i> Time-based parameters Problem-based parameters Complexity-based parameters IT environment-based parameters Customizable vendor coordination	
	<i>Client requirements mandated by vendor:</i> Adopt high-availability processes/procedures Adopt high-availability capabilities Adopt high-availability software/applications Adopt high-availability equipment Adopt other high-availability technologies	
	<i>Performance guarantees:</i> Uptime commitment Response time commitment Restore time commitment Penalties for vendor nonperformance Shared risk/reward agreements	
	<i>Defined downtime process elements include:</i> Customer experiences system outage Customer attempts self-resolution Customer calls predefined day/evening single point of contact Vendor performs: Q & A Symptom ID Trace file exam Failover process state Other diagnostic tests Vendor determines: Problem severity Required resolution	

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Category	Item Description	Check
	High-availability engineers/developers participate, as required Fixes, patches, workarounds developed, as necessary Client communication occurs at all phases Remediation is implemented Availability is restored Root cause determination is conducted Correlated problem avoidance and preventive procedures are devised	
High-availability vendor success factor determinants	<i>Strategic alignment with HA/MC drivers:</i> Internet connectivity eBusiness positioning eCommerce positioning Globalization of markets and businesses Multivendor positioning Integration of business processes with IT Competitive forces	
	<i>Alignment with high-availability success criteria:</i> Proactive, client-centric, and solution-focused positioning Highly customized, flexible service offerings Focused team of HA/MC experts with IT, business, and vertical market expertise State-of-the-art support technologies and architectures Best practice service processes, procedures, and methodologies Comprehensive service delivery and fulfillment capability Preventive and predictive approaches for ensuring availability Specialized market niche and focus Available metric/measurement systems Broad multivendor partnerships and alliances Ability to meet client requirements and deliver value	
	<i>Ability to meet with high-availability challenges:</i> Client definition, perception, requirements regarding HA/MC Client expectations regarding HA/MC service levels Client retention challenges Client communication and reporting infrastructure Vendor operational infrastructure Vendor technical infrastructure Vendor human resource capacity HA/MC design that balances: Availability Performance Manageability Total cost of operation Competitive differentiation	

Source: International Data Corporation, 1999

High-Availability Checklist Definitions

The following sections list select definitions for relevant checklist terminology.

High-Availability Service Scope and Coverage

- **Program objectives.** The parameters of the high-availability program's IT environment scope and availability representations.
- **Program positioning.** The extent to which the high-availability program is designed to be proactive, customizable, flexible, and solutions oriented, among other factors.
- **Service composition.** The extent to which the program offers comprehensive high-availability planning, implementation, operational and support services, and training.
- **Service coverage.** The depth of the high-availability program's environmental, IT component, downtime scenario, and vertical (niche) industry coverage.

High-Availability Services Portfolio

- **High-availability services criteria.** The set of general positions, functions, tools, and engagement parameters that set the broad tone for the high-availability program offering.
- **High-availability services activities and deliverables.** The set of proactive and reactive service components that constitute the specific deliverable elements of the program.
 - **Proactive services.** The range of specific high-availability pre-downtime services. These offerings are generally positioned as preventive services, intended to preclude system downtime.
 - **Reactive services.** The range of specific high-availability post-downtime services. These offerings are generally positioned as robust “crisis situation” remedial services intended to restore system availability rapidly.

High-Availability Delivery and Fulfillment Criteria

- **General fulfillment capabilities.** The characteristics of the high-availability vendor's service fulfillment positioning, including environmental competencies and uptime commitments.
- **High-availability facility infrastructure.** The nature of the vendor's physical delivery capacity, including support facilities and location strategy.
- **High-availability multivendor support positioning.** The breadth and depth of the vendor's single point of contact (SPOC) arrangements for dealing with complex diagnostic/repair

incidents that may exceed a service providers' existing competence. These arrangements may include partnerships, alliances, shared systems, and related processes.

- **High-availability personnel resources.** The nature of high-availability personnel team structure, composition, and qualifications.

Technology and Process Infrastructure

- **Technology infrastructure.** The existence of industry-standard, or above, call management, problem management, and process management technologies.
- **Process infrastructure.** The scope and range of defined parameters and workflow rules that govern the performance of work under a high-availability support incident.

High-Availability Vendor Success Factor Determinants

- **Alignment with high-availability and IT market trends.** The extent to which a vendor is aligned with marketplace drivers and trends that impact high-availability offerings, including Internet connectivity, global reach, and integration of business processes with IT.
- **Ability to meet high-availability challenges.** The capability of the service provider to meet high-availability fulfillment challenges, including client perceptions, expectations, technical hurdles, and organizational challenges.
- **Alignment with high-availability success criteria.** The extent to which a vendor is aligned with high-availability best practice service processes, procedures, and methodologies, among other factors.
- **Ability to meet high-availability challenges.** The extent to which a vendor is aware of the challenges involved in serving the high-availability market and the extent to which it is prepared to negotiate these challenges.
- **Ability to meet client requirements and deliver value.** The overall client-centric focus of the vendor with respect to understanding client needs around high-availability services and delivering successfully to those criteria.

Document #: 20383

Publication Date: October 1999

Published Under Services: Software Support and Integration Services
