BLUEDATA EPIC DEPLOYMENT AND INTEGRATION SERVICES

Advisory and Professional Services from HPE Pointnext Services

SERVICE OVERVIEW

BlueData EPIC Deployment and Integration Services provide the design and deployment of BlueData EPIC platform. During the delivery of these services, Hewlett Packard Enterprise works with the Customer to coordinate app image or ML Ops notebook planning, design, development, configuration, and validation of the Customer’s new BlueData EPIC solution.

This service is delivered both remotely and on-site. It is also designed to help the Customer quickly leverage the features and benefits of BlueData EPIC platform. When the Customer purchases this service, a BlueData, recently acquired by Hewlett Packard Enterprise, specialist is assigned to work with the Customer to help deploy and integrate the new product into the Customer’s IT infrastructure. In addition, the specialist also works with the Customer to provide valuable knowledge transfer that can help them quickly take ownership of the new BlueData EPIC solution.

Table 1 provides information on the service features available under these Advisory and Professional Services from HPE Pointnext Services.

SERVICE BENEFITS

• Complements the Customer IT team with globally available Advisory and Professional Services assistance from HPE Pointnext Services
• Helps implement and optimize, the Customer’s virtualized Big Data solution to its full potential—maximizing BlueData EPIC product ROI
• Provides access to BlueData EPIC technology expertise to help expedite initial assessment, design validation, deployment, and integration
• Delivers expert assistance to help the Customer learn how to deploy and operate their new BlueData EPIC environment
• Applies HPE deployment and integration best practices intended to help the Customer simplify and reduce implementation time that can help mitigate costly installation and configuration errors
• Provides valuable knowledge transfer that can help the Customer to leverage the BlueData EPIC product features
• Validate that the Customer’s BlueData EPIC deployment is fully commissioned and operational

SERVICE FEATURE HIGHLIGHTS

• Service planning
• BlueData EPIC Essential Configuration Service
• BlueData EPIC Advanced Configuration Service
• BlueData EPIC Premium Configuration Service
• BlueData EPIC App Store Development Service
• BlueData EPIC Single Image or ML Ops notebook Development Service
• BlueData EPIC Tailored Image Design Service
Service planning is delivered remotely and is designed to provide the Customer with a detailed plan and schedule for the delivery of the BlueData EPIC services. During service planning, HPE will conduct service planning meetings with the designated stakeholders to communicate the list of service activities and confirm that all pre-deployment prerequisites have been addressed. During these meetings, HPE will:

- Work with the Customer to review the service details, deliverables, and estimated timelines
- Review Customer-provided documents, which include, but are not limited to, BlueData EPIC Controller and Worker host servers architecture, node storage, network architecture (public and container network), scope definition, principles, and security requirements, in order to effectively scope and plan for the services
- Identify any additional changes to the existing data center environment required to prepare for the integration of new BlueData products and document them in the delivery plan and schedule
- Identify any product licensing and BlueData prerequisites that must be fulfilled for HPE to perform the services
- Identify any additional information required to allow HPE to deploy resources and begin service delivery
- Ascertain possible dates for development and configuration completion

HPE will create a mutually agreeable project plan and schedule, and determine the appropriate mix of technical and business resources necessary to implement the project. As part of service planning, HPE will facilitate a Big Data and Data Analytics Workshop for each of the service options chosen. The workshop is designed to help determine and document the scope and requirements of the desired use case, its images, and its operations.

Scope areas include, but are not limited to:

- Operations
- BlueData EPIC resource planning system and infrastructure preparation
- Virtual cluster creation
- Custom app image or ML Ops notebook development
- Storage connectivity
- Workload management
- Disaster recovery
- Business and technical outcomes
- Discovery of the Customer’s analytics infrastructure, security policies, and data governance models

Upon successful completion of the workshop, HPE will then develop the solution architecture documentation and functional testing plan. Once complete and with customer consensus, HPE will deploy the BlueData EPIC software in line with the project plan and schedule.

### BlueData EPIC Essential Configuration Service

Provides requirements assessment, solution development, design validation, and configuration of BlueData EPIC platform for installations of up to 240-core CPU. It also caters to the development of a BlueData EPIC App Store with up to two single app images or ML Ops notebooks.

This service begins with the mentioned HPE facilitated Big Data and data analytics requirements workshop. HPE will:

- Review and verify readiness of the necessary infrastructure for the deployment of the BlueData EPIC platform
- Install and configure the BlueData EPIC platform
- Install and configure application workbench
- Perform functionality testing on all components
- Create all Big Data applications images as agreed during the workshop
- Provide knowledge transfer to Customer stakeholders throughout delivery of the service, which includes an overview of the BlueData EPIC platform, algorithm development and testing, Big Data tools, and application of those solutions to the Customer’s business

Upon completion of the service, the Customer will have a fully functional BlueData EPIC environment to manage the Big Data workload associated to the agreed use case.

The following deliverables will be provided to the Customer in either hard- or soft-copy depending on the Customer’s requirements:

- Solution requirements document
- Solution architecture document
- Solution deployment plan
- Functional test plan
- Knowledge transfer plan
- Project executive summary

### TABLE 1. SERVICE FEATURES

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<td>Service planning is delivered remotely and is designed to provide the Customer with a detailed plan and schedule for the delivery of the BlueData EPIC services. During service planning, HPE will conduct service planning meetings with the designated stakeholders to communicate the list of service activities and confirm that all pre-deployment prerequisites have been addressed. During these meetings, HPE will: Work with the Customer to review the service details, deliverables, and estimated timelines. Review Customer-provided documents, which include, but are not limited to, BlueData EPIC Controller and Worker host servers architecture, node storage, network architecture (public and container network), scope definition, principles, and security requirements, in order to effectively scope and plan for the services. Identify any additional changes to the existing data center environment required to prepare for the integration of new BlueData products and document them in the delivery plan and schedule. Identify any product licensing and BlueData prerequisites that must be fulfilled for HPE to perform the services. Identify any additional information required to allow HPE to deploy resources and begin service delivery. Ascertain possible dates for development and configuration completion. HPE will create a mutually agreeable project plan and schedule, and determine the appropriate mix of technical and business resources necessary to implement the project. As part of service planning, HPE will facilitate a Big Data and Data Analytics Workshop for each of the service options chosen. The workshop is designed to help determine and document the scope and requirements of the desired use case, its images, and its operations. Scope areas include, but are not limited to: Operations. BlueData EPIC resource planning system and infrastructure preparation. Virtual cluster creation. Custom app image or ML Ops notebook development. Storage connectivity. Workload management. Disaster recovery. Business and technical outcomes. Discovery of the Customer’s analytics infrastructure, security policies, and data governance models. Upon successful completion of the workshop, HPE will then develop the solution architecture documentation and functional testing plan. Once complete and with customer consensus, HPE will deploy the BlueData EPIC software in line with the project plan and schedule.</td>
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| BlueData EPIC Essential Configuration Service | Provides requirements assessment, solution development, design validation, and configuration of BlueData EPIC platform for installations of up to 240-core CPU. It also caters to the development of a BlueData EPIC App Store with up to two single app images or ML Ops notebooks. This service begins with the mentioned HPE facilitated Big Data and data analytics requirements workshop. HPE will: Review and verify readiness of the necessary infrastructure for the deployment of the BlueData EPIC platform. Install and configure the BlueData EPIC platform. Install and configure application workbench. Perform functionality testing on all components. Create all Big Data applications images as agreed during the workshop. Provide knowledge transfer to Customer stakeholders throughout delivery of the service, which includes an overview of the BlueData EPIC platform, algorithm development and testing, Big Data tools, and application of those solutions to the Customer’s business. Upon completion of the service, the Customer will have a fully functional BlueData EPIC environment to manage the Big Data workload associated to the agreed use case. The following deliverables will be provided to the Customer in either hard- or soft-copy depending on the Customer’s requirements: Solution requirements document. Solution architecture document. Solution deployment plan. Functional test plan. Knowledge transfer plan. Project executive summary. |
### BlueData EPIC Advanced Configuration Service

Provides requirements assessment, solution development, design validation, and configuration of BlueData EPIC platform for installations above 240-core CPU and up to 480-core CPU. It also caters to the development of a BlueData EPIC App Store with up to four single app images or ML Ops notebooks.

HPE will:
- Review and verify readiness of the necessary infrastructure for the deployment of the BlueData EPIC platform
- Install and configure the BlueData EPIC platform
- Install and configure application workbench
- Perform functionality testing on all components
- Create all Big Data applications images as agreed during the workshop
- Provide knowledge transfer to Customer stakeholders throughout the delivery of the service, which includes an overview of the BlueData EPIC platform, algorithm development and testing, Big Data tools, and application of those solutions on the Customer’s business

Upon completion of the service, the Customer will have a fully functional BlueData EPIC environment to manage the Big Data workload associated to the agreed use case.

The following deliverables will be provided to Customer in either hard- or soft-copy depending on the Customer’s requirements:
- Solution requirements document
- Solution architecture document
- Solution deployment plan
- Functional test plan
- Knowledge transfer plan
- Project executive summary

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### BlueData EPIC Premium Configuration Service

Provides requirements assessment, solution development, design validation, and configuration of BlueData EPIC platform for installations above 480-core CPU and up to 1200-core CPU. It also caters to the development of a BlueData EPIC App Store with up to six single app images or ML Ops notebooks, and design of one tailored app image.

HPE will:
- Review and verify readiness of the necessary infrastructure for the deployment of the BlueData EPIC platform
- Install and configure the BlueData EPIC platform
- Install and configure application workbench
- Perform functionality testing on all components
- Create all Big Data applications images as agreed during the workshop
- Provide knowledge transfer to Customer stakeholders throughout the delivery of the service, which includes an overview of the BlueData EPIC platform, algorithm development and testing, Big Data tools, and application of those solutions on the Customer’s business

Upon completion of the service, the Customer will have a fully functional BlueData EPIC environment to manage the Big Data workload associated to the agreed use case.

The following deliverables will be provided to Customer in either hard- or soft-copy depending on the Customer’s requirements:
- Solution requirements document
- Solution architecture document
- Solution deployment plan
- Functional test plan
- Knowledge transfer plan
- Project executive summary
**TABLE 1. SERVICE FEATURES (CONTINUED)**

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<td><strong>BLUEDATA EPIC APP STORE DEVELOPMENT SERVICE</strong></td>
<td>Provides requirements assessment, solution development, design validation, and configuration of the BlueData EPIC App Store. As a prerequisite, the customer must purchase either the BlueData EPIC Essential, Advanced, or Premium Configuration Service. During the delivery of this service, HPE will:  • Conduct a planning workshop to assess the Customer’s Big Data and data analytics requirements  • Determine and document the scope and requirements of the desired use cases, its images, and its operations. Scope areas are, but not limited to:  – Image-class definition  – Data ingestion  – Data storage  – Data processing and machine learning  – View or output  – Business and technical outcomes  • Assess the Customer’s analytics infrastructure, security policies, and data governance models  • Create the app store image or ML Ops notebook design document and functional testing plan  • Develop and test the application images  • Deploy and test all aspects of the application cluster orchestration lifecycle  Upon completion of the service, the Customer will have fully functional application images associated to the agreed use case. The following deliverables will be provided to the Customer in either hard- or soft-copy depending on the Customer’s requirements:  • Application images or ML Ops notebook solution requirements document  • Application images or ML Ops notebook design document  • Functional test plan  • Project executive summary</td>
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<tr>
<td><strong>BLUEDATA EPIC SINGLE IMAGE OR ML OPS NOTEBOOK DEVELOPMENT SERVICE</strong></td>
<td>This service is designed to add on as single image to the Customer’s app store. It provides requirements assessment, solution development, design validation, and configuration for a BlueData EPIC Single Image Solution (Hadoop) or ML Ops notebook. As a prerequisite, the customer must purchase either the BlueData EPIC Essential, Advanced, or Premium Configuration Service. During the delivery of this service, HPE will:  • Conduct a planning workshop to assess the Customer’s Big Data and data analytics requirements.  • Determine and document the scope and requirements of the desired use cases, its images, and its operations. Scope areas include but are not limited to:  – Image-class or ML Ops notebook definition  – Data ingestion  – Data storage  – Data processing and machine learning  – View or output  – Business and technical outcomes  • Assess the Customer’s analytics infrastructure, security policies, and data governance models  • Create the app store image or ML Ops notebook design document and functional testing plan  • Develop and test the application images  • Deploy and test all aspects of the application cluster orchestration lifecycle  Upon completion of the service, the Customer will have fully functional application images associated to the agreed use case. The following deliverables will be provided to the Customer in either hard- or soft-copy depending on the Customer’s requirements:  • Application images or ML Ops notebook solution requirements document  • Application images or ML Ops notebook design document  • Functional test plan  • Project executive summary</td>
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| **BLUEDATA EPIC TAILORED IMAGE DESIGN SERVICE** | Provides requirements assessment and solution design/configuration of a BlueData EPIC Tailored Image solution, and generates a time-and-material quote for the development of the same. As a prerequisite, the customer must purchase either the BlueData EPIC Essential, Advanced, or Premium Configuration Service. During the delivery of this service, HPE will:  
• Conduct a planning workshop to assess the Customer’s Big Data and data analytics requirements.  
• Determine and document the scope and requirements of the desired use cases, its images, and its operations. Scope areas include, but are not limited to:  
  – Image-class definition  
  – Data ingestion  
  – Data storage  
  – Data processing and machine learning  
  – View or output  
  – Business and technical outcomes  
• Assess the Customer’s analytics infrastructure, security policies, and data governance models  
• Evaluate the business and technical requirements for all desired application images  
• Create the app store image design document and functional testing plan  
• Present the findings, user stories, workflow designs, and application image requirements  
• Provide an estimate level of effort and a time-and-materials pricing to develop and test the desired app images  
• Determine the next steps  
Upon completion of the service, the Customer will have a full design and an estimated development effort for all desired application images. The following deliverables will be provided to Customer in either hard- or soft-copy depending on the Customer’s requirements:  
• Application images solution requirements document  
• Application images design document  
• Functional test plan  
• Estimated level of effort  
• Project executive summary |

| KNOWLEDGE TRANSFER | To close out the development and configuration for BlueData EPIC platform, the BlueData specialist will present the Customer with final documentation. Using the final documentation, the specialist will also provide a knowledge transfer session to the appropriate Customer stakeholders. The activities associated with this service may include facilitating a knowledge transfer session for BlueData operational control to the Customer. This also includes:  
• Providing an overview of the completed implementation, including the broad steps taken to achieve the implementation together with the functionality of the deployment  
• Offering operational tips specific to BlueData such as user guides, cookbooks, and best practices  
• Giving updated design documents, if applicable  
• Providing examples of the use of BlueData functionality, as applicable  
• Describing examples of expansion possibilities or additional migration advantages  
• Delivering final validation that the Customer’s BlueData EPIC environment is fully commissioned and operational  
• Evaluating results against pre-defined objectives and determine next steps |

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COVERAGE

This service is available on regular HPE workdays (excluding weekend days and HPE holidays) during country-specific HPE standard business hours.

CUSTOMER RESPONSIBILITIES

The Customer will:

• Assign a primary stakeholder to participate in the service planning meeting and follow-on service activity.
• Ensure that a primary stakeholder or designated staff person is assigned and who, on behalf of the customer, will grant all approvals; provide information; confirm that the hardware, firmware, and software needed to deliver this service are available and make sure that software products are properly licensed; and otherwise be available to assist HPE in facilitating the delivery of this service.

The designated primary contact will be:

• Responsible for all Customer aspects of the assigned work efforts
• Authorized to take all decisions relative to the project, including identification and assignment of Customer resources
• Available and able to interface with HPE assigned resources on day-to-day issues throughout the project
• Authorized to sign status reports and approve project changes
• Able to coordinate all work efforts and meeting schedules
• Responsible for all service prerequisites—including, but not limited to, those identified during service planning—and ensure they have been met prior to delivery of remote and/or on-site services development and configuration services

The designated primary contact will also:

• Provide suitable virtual private network (VPN) or other suitable connectivity as required for the delivery of remotely delivered services
• Allow HPE full and unrestricted network access to all locations where the service is to be performed on-site
• Provide access to network service such as NTP, DNS, default gateways and routes, and any remediation, if needed
• Offer access to external systems including but not limited to: Active Directory (AD), Lightweight Directory Access Protocol (LDAP) with Transport Layer Security (TLS), Key Distribution Center (KDC), Kerberos (Krb5), Domain Name Systems (DNS), Network Time Protocol (NTP), administrator, end user, and existing storage systems such as Hadoop Distributed File Systems (HDFS) and Network File Systems (NFS)
• Ensure that all products associated with the tasks to be performed by HPE are ordered and available on-site prior to the start of the services and/or the arrival of the HPE assigned BlueData specialist on-site
• Provide HPE the following for application workbench (including but not limited to)
  – Define and document the user stories related to the application images to be developed
  – Manually install application image (.bin) file
  – Uninstall distributions or tools not required as part of implementation
  – Create and test the application images
  – Manually install software on utility nodes (Docker containers) to understand the feasibility, as well as identify specific services or user interfaces that need to be exposed
  – Develop suite of tests with end user group for testing
  – Create finalized image based on user input
• Provide HPE with the current network architecture, standards, and detailed design documentation that may include, but is not limited to:
  – Project plans and schedules
  – Network topology diagrams
  – Rack placement diagrams
Cable maps (device and end station cable numbers, patch panel designation and port numbers, device port numbers, and VLAN information)

- IP address maps

- Network environment administrative and management parameters and variables (hostname, administration, users, authorization, administrative IP address, management passwords, SNMP, NTP, DNS server addresses, DHCP, and logging)

- Current-state information for Spanning Tree, Layer 2 protection mechanism, link aggregation, and advanced VLAN configuration

- SSID-to-VLAN mapping

- Security for each SSID

- LDAP or RADIUS server to facilitate wired and wireless LAN security where required

- Make any modifications to the existing network including validation of connectivity to all end points that are required and identified during the planning stages of this service, prior to HPE performing configuration and integration tasks

- Advise HPE of any special security, health, and safety matters applicable to the Customer site where the service is to be provided

- Provide to HPE, on request, any information that HPE may reasonably request about the execution of the service

- Coordinate all required internal/third-party participation and cooperation

- Assign or make available experienced subject-matter and technical experts, upon request or as needed

- Provide HPE with the necessary access to Customer building facilities and computer room facilities, as well as access credentials for logging into all BlueData EPIC related infrastructure and services for the service planning, as required

- Purchase or provide all hardware, software, licenses, staff, current maintenance contracts, and environments necessary for HPE to deliver the service

- Be responsible for developing and applying any configurations to network equipment, cabling, notifications, and change control documentation

- Provide a suitable work and meeting area commensurate with the number of on-site HPE consultants and Customer subject-matter experts assigned to the analysis, including desks, chairs, telephones, and internet/HPE network access through a VPN

Ensure that the infrastructure configurations meet the following minimum recommended requirements:

**Browser requirements:**

- Chrome: Version 68.0.3440.106 (Official build) (64-bit)
- Firefox: 61.0.2 (64 bit)

**On-premises host requirements (Physical or Virtual Machines):**

- 1 x EPIC Controller: 20 cores, 192 GB RAM, 600 GB Boot Disk, 2 x 2 TB Raw Block Device, 2 x 10 Gb NIC cards
- 1 x EPIC Shadow: 20 cores, 192 GB RAM, 600 GB Boot Disk, 2 x 2 TB Raw Block Device, 2 x 10 Gb NIC cards
- 1 x EPIC Arbiter: 20 cores, 192 GB RAM, 600 GB Boot Disk, 2 x 2 TB Raw Block Device, 2 x 10 Gb NIC cards
- 4 x EPIC Worker: 20 cores, 192 GB RAM, 600 GB Boot Disk, 2 x 2 TB Raw Block Device, 2 x 10 Gb NIC cards
- 1 x EPIC Gateway: 8 cores, 32 GB RAM, 600 GB Boot Disk
- If using GPUs, use NVIDIA® Quadro or Tesla GPUs with all drivers

**Operating system requirements:**

- 64-bit Red Hat® Enterprise Linux® or CentOS operating systems:
  - 7.4 (minimum kernel version for a new BlueData EPIC installation is 7.4[3.10.693.el7.x86_64])
  - 7.5 (recommended)

**SERVICE LIMITATIONS**

- HPE does not modify any configurations of any equipment that is not part of the BlueData EPIC solution.
- Customer acknowledges and agrees that HPE may use resources outside the country of purchase for delivery of these services.
On-site service assistance will be provided at one physical location in the country where the service is sold. The Customer should check with their local HPE authorized representative to find out whether a specific location is eligible for this service.

**GENERAL PROVISIONS/OTHER EXCLUSIONS**

- To the extent HPE processes personal data on the Customer’s behalf in the course of providing services, the HPE Data Privacy and Security Agreement Schedule—HPE Support and Professional Services found at [hpe.com/info/customer-privacy.html](http://hpe.com/info/customer-privacy.html) shall apply.
- BlueData EPIC services are governed by HPE standard terms for professional services.
- Our ability to deliver this service is dependent upon the Customer’s full and timely cooperation with HPE, as well as the accuracy and completeness of any information and data the Customer provides to HPE.
- Upon receipt of an acceptable order, HPE will contact the Customer within seven business days to organize a service delivery date. Service delivery dates are subject to resource availability and may be scheduled up to 30 days from the order acceptance date. Service eligibility will expire at the end of 12 months/365 days from the date of purchase if not used. Under no circumstances shall the Customer be entitled to a credit or refund of any unused services.
- Services are either performed remotely or at the Customer’s site, based upon services identified in the Service features table. Remote and on-site service delivery will occur during the first morning and last workday of each week (or as jointly determined by both parties).
- Allow HPE to connect to their network both on-site and remotely for HPE to perform the services as required.
- HPE assumes that all information provided by the Customer is accurate. HPE will collaborate with the Customer to determine acceptable estimates for any information that is not available.

**SUPPLEMENTAL TERMS**

The following supplemental terms apply to these services and take precedence in the event of any conflict:

- Upon receipt of an acceptable order, HPE will contact the Customer within seven (7) business days to organize a service delivery date. Service delivery dates are subject to resource availability and may be scheduled up to 30 days from the order acceptance date.
- The Customer must schedule and receive delivery of these services within 180 days from order acceptance. HPE reserves the right to reprice for services not scheduled and delivered within 180 days. Backorders or shipment delays may affect the delivery timeline. Orders for services will expire after 365 days (one year) from the order acceptance date for services not scheduled and delivered, and the Customer will not be entitled to a refund for the unused services.

**ORDERING INFORMATION**

Availability of service features and service levels may vary according to local resources and may be restricted to eligible products and geographic locations. To obtain further information or to order deployment and integration services for BlueData EPIC, contact a local HPE sales representative and reference the following product number(s):

- HU1E1A1—BlueData EPIC Essential Configuration Service
- HU1E2A1—BlueData EPIC Advanced Configuration Service
- HU1E3A1—BlueData EPIC Premium Configuration Service
- HU1E4A1—BlueData EPIC App Store Development Service*
- HU1E5A1—BlueData EPIC Single Image or ML Ops notebook Development Service*
- HU1E6A1—BlueData EPIC Tailored Image Design Service*

* In order to purchase these services, one of the prerequisite services, such as BlueData EPIC Essential Configuration Service, BlueData EPIC Advanced Configuration Service, or BlueData EPIC Premium Configuration Service, must also be purchased.

Depending on the point of purchase and the requested service options, other product part numbers may apply. Consult a local HPE representative or HPE reseller regarding the product number that will best meet your specific needs.