Expression of Interest
(EOI)

Title of Consulting Services*:*

Implementation of Hosting Panel for Lumbini Province Government

Method of Consulting Service
National

Project Name   : Hosting Panel for Lumbini Province Government
EOI: *SSPP_EOI_81/82_3*
Office Name   : Suchana tatha Sanchar Prabidhi Pratisthan
Office Address: Butwal, Rupandehi,
Issued on: February 25, 2025
Financing Agency: Government Budget

Abbreviations

CV	-	Curriculum Vitae
DO	-	Development Partner
EA	-	Executive Agency
EOI	-	Expression of Interest
GON	-	Government of Nepal
PAN	-	Permanent Account Number
PPA	-	Public Procurement Act
PPR	-	Public Procurement Regulation
TOR	-	Terms of Reference
VAT	-	Value Added Tax

Contents

A. Request for Expression of Interest

Government of Nepal
Lumbini Province Government
Suchana tatha Sanchar Prabidhi Pratisthan
Butwal, Rupandehi,

Date: February 25, 2025

Name of Project: Design develop and commissioning of Hosting Panel for Lumbini Province

1. Government of Nepal (GoN) has allocated fund ***towards the cost of Hosting Panel*** and intends to apply this ***fund*** to eligible payments under the Contract for which this Expression of Interest is invited for **National consulting service**.
2. The **Suchana tatha Sanchar Prabidhi Pratisthan** now invites Expression of Interest (EOI) from eligible consulting firms ("consultant") to provide the following consulting services: **Design develop and commissioning of Hosting Panel for Lumbini Province**

3. Interested eligible consultants may obtain further information and EOI document free of cost at the address during office hours on or before **11 March, 2025** or visit the website.
4. Consultants may associate with other consultants to enhance their qualifications.
5. Expressions of interest shall be delivered manually to the address **Suchana tatha Sanchar Prabidhi Pratisthan, Butwal, Rupandehi, Lumbini Province** on or before 11 **March, 2025 13:00 hours**.
6. In case the last date of obtaining and submission of the EOI documents happens to be a holiday, the next working day will be deemed as the due date but the time will be the same as stipulated.
7. EOI will be assessed based on ***Qualification (40%), Experience (50%), and Capacity (10%)*** of consulting firm and key personnel. Based on evaluation of EOI, only shortlisted firms will be invited to submit technical and financial proposal through a request for proposal.
8. Minimum score to pass the EOI is ***70***.

B. Instructions for submission of Expression of Interest

1. Expression of Interest may be submitted by a sole firm or a joint venture of consulting firms and the maximum number of partners in JV shall be limited to three.

2. Interested consultants must provide information indicating that they are qualified to perform the services *(descriptions, organization and employee and of the firm or company, description of assignments of similar nature completed in the last 5 years and their location, experience in similar conditions, general qualifications and the key personnel to be involved in the proposed assignment).*

3. This expression of interest is open to all eligible **consulting firm**.

4. The assignment has been scheduled for a period of **2 months.** Expected date of commencement of the assignment is **15 April,2025.**

5. A Consultant will be selected in accordance with the **Quality Cost Based Selection (QCBS)** method.

6. Expression of Interest should contain following information:

    (i) A covering letter addressed to the representative of the client on the official letter head of company duly signed by authorized signatory.

    (ii) Applicants shall provide the following information in the respective formats given in the EOI document:

    - *EOI Form: Letter of Application (Form 1)*
    - *EOI Form: Applicant's Information (Form 2)*
    - *EOI Form: Work Experience Details (Form 3(A), 3(B) & 3(C))*
    - *EOI Form: Capacity Details (Form 4)*
    - *EOI Form: Key Experts List (form 5).*

7. Applicants may submit additional information with their application but shortlisting will be based on the evaluation of information requested and included in the formats provided in the EOI document.

8. The Expression of Interest (EOI) document must be duly completed and submitted in sealed envelope and should be clearly marked as "EOI Application for Short-listing for the **Province Sports Information system**. The Envelope should also clearly indicate the *name and address of the Applicant*.

9. The completed EOI document must be submitted on or before the date and address mentioned in the **"*Request for Expression of Interest*".** In case the submission falls on public holiday the submission can be made on the next working day. Any EOI Document received after the closing time for submission of proposals shall not be considered for evaluation.

C. Objective of Consultancy Services or Brief TOR

Background

Information and Communication Technology Pratishthaan (ICTP), Butwal, aims to optimize its cloud resources by implementing a custom hosting control panel. This panel will enable efficient management of cloud resources, allowing ICTP to host a maximum number of information systems while minimizing resource wastage. The hosting control panel will provide a centralized platform for managing websites, databases, security, and other critical hosting functionalities, similar to popular control panels like cPanel.

Scope of the project

Technical Specification

Functional Requirements

1. Website Management

The hosting control panel will provide robust tools for managing websites hosted on ICTP's cloud infrastructure. This includes:

- **Multi-Language Support**: The panel will support seamless deployment and management of websites written in various programming languages, including Python, PHP, Node.js, and others. This will allow ICTP to host a diverse range of applications and websites without compatibility issues.
- **Proxy Configuration**: The panel will allow administrators to set up reverse proxies for optimized performance and enhanced security. Reverse proxies can be used to distribute traffic, cache content, and protect against DDoS attacks.
- **One-Click Applications**: The panel will simplify the deployment of popular Content Management Systems (CMS) like WordPress, Joomla, and Drupal. Pre-configured setups will reduce the time and effort required to deploy new websites.
- **Domain Management**: The panel will allow users to manage domain names, including domain registration, DNS settings, and SSL certificate installation. This will ensure that all hosted websites are secure and accessible.

2. Database Management

The hosting control panel will include comprehensive tools for managing databases, which are critical for the operation of web applications and information systems. Key features include:

- **Multi-Database Support**: The panel will support multiple database systems, including MySQL, PostgreSQL (PgSQL), Redis, and MongoDB. This will allow ICTP to host applications that require different types of databases.

- **Remote Database Support**: The panel will allow integration with remote SQL Server instances, providing flexibility for organizations that use external databases.
- **Optimization Tools**: Built-in tools for database optimization and performance monitoring will ensure that databases run efficiently, even under heavy loads. This includes tools for indexing, query optimization, and database replication.
- **Backup and Restore**: The panel will provide automated backup and restore options for databases, ensuring data integrity and minimizing the risk of data loss.

3. File Management

Efficient file management is essential for maintaining the security and organization of hosted websites and applications. The hosting control panel will include:

- **Permission Control**: The panel will allow administrators to manage file and folder permissions, ensuring that only authorized users can access sensitive data.
- **File Editor**: A built-in file editor will allow users to edit files directly through the control panel, eliminating the need for external tools.
- **Bulk Operations**: The panel will support bulk uploads, deletions, and modifications, making it easier to manage large numbers of files.
- **File Protection**: The panel will include tools for protecting files from unauthorized access, such as password protection and encryption.

4. FTP Services

File Transfer Protocol (FTP) is a critical component of web hosting, allowing users to upload and download files to and from the server. The hosting control panel will provide:

- **FTP Account Management**: The panel will allow administrators to create and manage FTP accounts, ensuring secure and efficient file transfers.
- **FTP/SFTP Integration**: The panel will support both FTP and SFTP (Secure File Transfer Protocol), ensuring data integrity and encryption during file transfers.
- **File Transfer Monitoring**: The panel will provide logs and reports of file transfer activities, allowing administrators to monitor and audit file transfers.

5. Security Features

Security is a top priority for ICTP, and the hosting control panel will include a wide range of security features to protect hosted websites and applications. These features include:

- **Integrated Firewall**: The panel will include a customizable firewall for managing inbound and outbound traffic. This will help protect against unauthorized access and DDoS attacks.
- **SSH Management**: The panel will allow administrators to manage SSH access to servers, ensuring secure remote access.
- **Brute Force Protection**: The panel will monitor and block suspicious login attempts, protecting against brute force attacks.
- **Anti-Intrusion Tools**: Real-time intrusion detection and mitigation tools will help protect against hacking attempts and other security threats.
- **System Hardening**: The panel will implement best practices for server security, such as disabling unnecessary services and applying security patches.

6. Web Application Firewall (WAF)

The hosting control panel will include a Web Application Firewall (WAF) to protect web applications from common threats such as SQL injection, cross-site scripting (XSS), and DDoS attacks. Key features include:

- **Custom Rules**: Administrators will be able to configure custom rules to protect specific web applications.
- **Real-Time Alerts**: The panel will provide immediate notifications of potential vulnerabilities or attacks, allowing administrators to respond quickly.
- **Reporting and Logging**: Detailed reports and logs of WAF activity will help administrators analyze and respond to threats.

7. Docker Management

The hosting control panel will support Docker, a popular platform for containerization. This will allow ICTP to deploy and manage containerized applications efficiently. Key features include:

- **Container Management**: The panel will allow administrators to deploy and manage Docker containers directly from the control panel.
- **Volume Management**: The panel will provide tools for configuring and organizing storage volumes for Docker containers.
- **Image Management**: The panel will allow administrators to pull, update, and manage Docker images efficiently.

8. System Resource Monitoring

The hosting control panel will include real-time monitoring of server resources, ensuring that ICTP's cloud infrastructure runs smoothly. Key features include:

- **CPU, Memory, and Disk Usage Monitoring**: The panel will provide real-time data on CPU, memory, and disk usage, allowing administrators to identify and resolve performance bottlenecks.
- **Network Traffic Monitoring**: The panel will monitor network traffic, providing insights into bandwidth usage and potential network issues.
- **Alerts and Notifications**: The panel will send alerts and notifications when resource usage exceeds predefined thresholds, allowing administrators to take proactive measures.

9. Mail Server Management

The hosting control panel will include tools for managing mail servers, ensuring reliable and secure email communication. Key features include:

- **Mailbox Management**: The panel will allow administrators to create, manage, and monitor email accounts.
- **Backup and Restore**: The panel will provide automated backup and restore options for mailboxes, ensuring data integrity.
- **Spam Control**: Integrated spam detection and management tools will help reduce the volume of unwanted emails.

10. Automated Backup and Scheduling

The hosting control panel will include tools for automating repetitive tasks, such as backups and updates. Key features include:

- **Cron Jobs**: The panel will allow administrators to schedule cron jobs for tasks such as backups, updates, and database optimization.
- **Job Scheduling**: The panel will allow administrators to set specific schedules for tasks, ensuring efficient server operations.
- **Data Restoration**: The panel will provide easy restoration of backups for websites, databases, and emails.

11. User Management

The hosting control panel will include tools for managing users and their access to resources. Key features include:

- **Custom Packages**: Administrators will be able to assign users with specific packages based on their requirements, such as storage limits and bandwidth.
- **Storage Management**: The panel will allow administrators to monitor and allocate storage usage per account.
- **Activity Logs**: The panel will maintain logs of user activities for audit purposes.

12. Logs Management

The hosting control panel will provide detailed logs for monitoring and auditing purposes. Key features include:

- **Panel Logs**: The panel will provide logs related to control panel operations.
- **Website Logs**: The panel will provide access, error, and traffic logs for hosted websites.
- **Audit Logs**: The panel will provide detailed records of changes made within the system.
- **Login Logs**: The panel will track all login attempts, including failed attempts, for security auditing.

13. App and Plugin Management

The hosting control panel will include tools for managing apps and plugins, allowing ICTP to extend the functionality of hosted websites and applications. Key features include:

- **Plugin Integration**: The panel will allow administrators to manage and install plugins to extend functionality.
- **App Marketplace**: The panel will include an app marketplace for browsing and deploying apps directly from the control panel.
- **Version Control**: The panel will allow administrators to update installed apps and plugins seamlessly.

14. Other Features

The hosting control panel will include additional features to enhance functionality and usability. These features include:

- **Online Code Editor**: The panel will include an online code editor for editing files directly through the control panel.
- **File Protection**: The panel will include tools for protecting files from unauthorized access.
- **Website Traffic Analysis**: The panel will provide tools for analyzing website traffic, including visitor statistics and traffic sources.
- **DNS Server**: The panel will include tools for managing DNS settings, ensuring that hosted websites are accessible.

15. Customization

The hosting control panel will be highly customizable, allowing ICTP to tailor the panel to its specific needs. Key customization features include:

- **Customized Dashboard**: The panel will allow administrators to customize the dashboard to display relevant information and metrics.
- **Role-Based Access**: The panel will allow administrators to assign roles and permissions to users, ensuring that only authorized users can access sensitive features.
- **Automated Security Patching**: The panel will include tools for automating security patching, ensuring that hosted systems are always up to date.
- **Load Balancing**: The panel will include tools for load balancing, ensuring that traffic is distributed evenly across servers.
- **Pre-Configured e-Governance CMS**: The panel will include pre-configured e-Governance CMS templates, allowing ICTP to quickly deploy e-Governance applications.
- **Customizable Backups**: The panel will allow administrators to customize backup schedules and settings, ensuring that backups are performed according to ICTP's requirements.

16. Technical Support

The hosting control panel will include dedicated technical support to ensure that ICTP can resolve any issues quickly. Key features include:

- **Dedicated Support**: The panel will include access to a dedicated support team for resolving technical issues.
- **Compliance Audit Support**: The panel will include tools for ensuring compliance with relevant regulations and standards.

Non Functional Requirements

The hosting control panel to be implemented at Information and Communication Technology Pratishthaan (ICTP), Butwal, must meet specific non-functional requirements to ensure scalability, security, reliability, and maintainability. These requirements are critical for the long-term success and sustainability of the hosting infrastructure. Below is a detailed elaboration of the non-functional requirements:

1. Scalability

- **Accommodate Future Growth**:

- o The panel must be designed to scale horizontally and vertically to accommodate an increasing number of hosted systems, users, and applications.
  - o Support for load balancing and distributed architectures to handle growing traffic and resource demands.
- **Resource Allocation**:
  - o The panel should dynamically allocate resources (e.g., CPU, memory, storage) based on the needs of hosted systems.
  - o Tools for monitoring resource usage and scaling resources up or down as needed.
- **Modular Architecture**:
  - o The panel should have a modular architecture, allowing new features and functionalities to be added without disrupting existing services.

2. Security

- **Anti-Intrusion Tools**:
  - o The panel must include real-time intrusion detection and prevention systems (IDPS) to identify and mitigate security threats.
  - o Tools for monitoring and blocking suspicious activities, such as brute force attacks and unauthorized access attempts.
- **System Hardening**:
  - o The panel should implement best practices for system hardening, including disabling unnecessary services, applying security patches, and configuring secure defaults.
  - o Regular security audits and vulnerability assessments to ensure the system remains secure.
- **Data Encryption**:
  - o All data transmitted between the panel and users should be encrypted using secure protocols (e.g., TLS/SSL).
  - o Support for encrypting sensitive data at rest, such as database backups and user credentials.
- **Access Control**:
  - o The panel should enforce strict access control policies, including role-based access control (RBAC) and multi-factor authentication (MFA).

3. Reliability

- **Minimal Downtime**:
  - o The panel must be designed for high availability, with minimal downtime for maintenance and updates.
  - o Support for redundant systems and failover mechanisms to ensure continuous operation.
- **Efficient Resource Utilization**:
  - o The panel should optimize resource utilization to ensure efficient performance, even under heavy loads.
  - o Tools for monitoring and managing resource usage to prevent over-provisioning or under-provisioning.
- **Disaster Recovery**:
  - o The panel should include robust disaster recovery mechanisms, such as automated backups and quick restoration options.
  - o Support for geographically distributed backups to protect against data loss in case of a catastrophic failure.

4. Maintainability

- **Regular Updates**:
    - The panel should support regular updates for both the control panel software and the underlying hosting infrastructure.
    - Automated update mechanisms to ensure that the system is always running the latest, most secure versions of software.
- **Technical Support**:
    - The panel must include access to dedicated technical support for troubleshooting and resolving issues.
    - Comprehensive documentation and user guides to assist administrators in maintaining the system.
- **Monitoring and Alerts**:
    - The panel should include tools for monitoring system health and performance, with alerts for potential issues.
    - Support for integrating with third-party monitoring tools for enhanced visibility and control.
- **User-Friendly Maintenance Tools**:
    - The panel should provide user-friendly tools for performing routine maintenance tasks, such as log rotation, database optimization, and file cleanup.
    - Support for automating maintenance tasks to reduce the workload on administrators.

Implementation Plan for Hosting Control Panel

The implementation of the hosting control panel at Information and Communication Technology Pratishthaan (ICTP), Butwal, will be carried out in a structured and phased manner to ensure the successful deployment and integration of the system. Below is a detailed implementation plan, divided into six key phases:

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1. Requirement Analysis

- **Objective**: Understand ICTP's cloud infrastructure and hosting needs to define the scope and requirements of the hosting control panel.
- **Activities**:
    - Conduct meetings with ICTP stakeholders to gather requirements and expectations.
    - Analyze the existing cloud infrastructure, including hardware, software, and network configurations.
    - Identify key features and functionalities required for the hosting control panel, such as website management, database management, security features, and Docker management.
    - Document the requirements in a detailed **Requirements Specification Document (RSD)**.
- **Outcome**: A clear understanding of ICTP's needs and a finalized list of features and functionalities for the hosting control panel.

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2. Design and Development

- **Objective**: Design and develop a scalable, secure, and user-friendly hosting control panel based on the requirements gathered.
- **Activities**:
  - **Design Phase**:
    - Design the architecture of the hosting control panel, ensuring scalability, security, and modularity.
    - Create wireframes and prototypes for the user interface (UI) to ensure a user-friendly experience.
    - Define the database schema, API endpoints, and integration points with existing systems.
  - **Development Phase**:
    - Develop the core features of the panel, including website management, database management, security features, and Docker management.
    - Implement security measures such as firewalls, intrusion detection systems, and role-based access control.
    - Integrate third-party tools and services (e.g., Docker, FTP/SFTP, WAF) as required.
- **Outcome**: A fully functional hosting control panel ready for testing.

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3. Testing and Quality Assurance

- **Objective**: Ensure the hosting control panel meets all functional and non-functional requirements and is free from vulnerabilities.
- **Activities**:
  - **Functional Testing**:
    - Test all features of the panel, including website deployment, database management, and security tools, to ensure they work as intended.
  - **Security Testing**:
    - Conduct vulnerability assessments and penetration testing to identify and mitigate security risks.
    - Test the panel's resistance to common threats such as SQL injection, cross-site scripting (XSS), and brute force attacks.
  - **Performance Testing**:
    - Test the panel's performance under different load conditions to ensure it can handle the expected number of users and hosted systems.
    - Monitor resource usage (e.g., CPU, memory, disk) during peak loads.
  - **User Acceptance Testing (UAT)**:
    - Involve ICTP staff in testing the panel to ensure it meets their needs and expectations.
- **Outcome**: A thoroughly tested and validated hosting control panel ready for deployment.

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4. Deployment

- **Objective**: Deploy the hosting control panel on ICTP's cloud infrastructure and integrate it with existing systems.
- **Activities**:
  - Set up the hosting control panel on ICTP's cloud servers, ensuring proper configuration of hardware and software.
  - Integrate the panel with existing systems, such as databases, email servers, and network infrastructure.

- o Migrate existing websites, databases, and applications to the new hosting control panel.
  - o Conduct a final round of testing post-deployment to ensure everything is functioning correctly.
- **Outcome**: The hosting control panel is successfully deployed and operational within ICTP's cloud infrastructure.

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5. Training and Documentation

- **Objective**: Ensure ICTP staff are well-trained to use the hosting control panel and have access to comprehensive documentation.
- **Activities**:
  - o **Training Sessions**:
    - Conduct hands-on training sessions for ICTP staff, covering all aspects of the hosting control panel, including website management, database management, and security features.
    - Provide training on troubleshooting common issues and performing routine maintenance tasks.
  - o **Documentation**:
    - Develop user manuals, technical guides, and FAQs to assist ICTP staff in using the panel.
    - Create video tutorials and step-by-step guides for common tasks.
- **Outcome**: ICTP staff are proficient in using the hosting control panel and have access to comprehensive documentation.

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6. Maintenance and Support

- **Objective**: Provide ongoing support and maintenance to ensure the hosting control panel remains secure, up-to-date, and fully functional.
- **Activities**:
  - o **Technical Support**:
    - Provide 24/7 technical support for resolving issues and answering queries related to the hosting control panel.
    - Set up a ticketing system for tracking and resolving support requests.
  - o **Regular Updates**:
    - Regularly update the panel with new features, security patches, and performance improvements.
    - Schedule updates during maintenance windows to minimize downtime.
  - o **Monitoring and Alerts**:
    - Continuously monitor the panel's performance and security, with real-time alerts for potential issues.
    - Conduct periodic security audits and performance reviews.
- **Outcome**: The hosting control panel remains secure, reliable, and up-to-date, with minimal downtime and efficient resource utilization.

Expected Outcomes of Hosting Control Panel Implementation

The implementation of the hosting control panel at Information and Communication Technology Pratishthaan (ICTP), Butwal, is expected to deliver significant benefits across multiple dimensions.

Below is a detailed elaboration of the expected outcomes:

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1. Efficient Resource Utilization

- **Maximized Cloud Resources**:
  - The hosting control panel will optimize the use of ICTP's limited cloud resources, ensuring that every bit of computing power, storage, and bandwidth is utilized effectively.
  - Tools for real-time monitoring and resource allocation will help prevent resource wastage and ensure that hosted systems run efficiently.
- **Increased Hosting Capacity**:
  - By streamlining resource management, the panel will allow ICTP to host a greater number of information systems without the need for additional hardware or infrastructure.
  - Support for containerization (e.g., Docker) will enable ICTP to run multiple applications on the same server, further maximizing resource utilization.

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2. Enhanced Security

- **Protection Against Threats**:
  - The panel's integrated security features, such as firewalls, intrusion detection systems, and brute force protection, will safeguard hosted systems from common threats like DDoS attacks, malware, and unauthorized access.
  - Regular security updates and automated patching will ensure that the system remains protected against emerging vulnerabilities.
- **Data Integrity and Privacy**:
  - Encryption protocols (e.g., SSL/TLS) will ensure that data transmitted between users and the server is secure.
  - Role-based access control (RBAC) and multi-factor authentication (MFA) will prevent unauthorized access to sensitive data and systems.
- **Compliance with Security Standards**:
  - The panel will help ICTP comply with industry security standards and regulations, reducing the risk of data breaches and legal liabilities.

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3. Improved Management

- **Centralized Control**:
  - The hosting control panel will provide a centralized platform for managing websites, databases, applications, and security settings, reducing the complexity of managing multiple systems.
  - A unified dashboard will allow administrators to monitor and control all aspects of the hosting environment from a single interface.
- **Simplified Operations**:
  - Features like one-click application deployment, automated backups, and scheduled updates will simplify routine tasks, reducing the workload on ICTP staff.
  - User-friendly tools for file management, database optimization, and log monitoring will make it easier for administrators to perform their duties efficiently.
- **Reduced Administrative Burden**:

o Automation of repetitive tasks (e.g., backups, security patching) will free up ICTP staff to focus on more strategic activities, improving overall productivity.

4. Scalability

- **Future-Proof Infrastructure**:
  - o The hosting control panel will be designed to scale horizontally and vertically, allowing ICTP to expand its hosting capabilities as the organization grows.
  - o Support for load balancing and distributed architectures will ensure that the system can handle increased traffic and resource demands without performance degradation.
- **Flexible Resource Allocation**:
  - o The panel will allow ICTP to dynamically allocate resources (e.g., CPU, memory, storage) based on the needs of hosted systems, ensuring optimal performance at all times.
  - o Tools for monitoring resource usage will help ICTP plan for future growth and avoid over-provisioning or under-provisioning.

5. Cost Savings

- **Reduced Operational Costs**:
  - o By optimizing resource utilization and automating routine tasks, the hosting control panel will reduce the operational costs associated with managing ICTP's cloud infrastructure.
  - o Efficient resource allocation will minimize the need for additional hardware, reducing capital expenditure.
- **Lower Maintenance Costs**:
  - o Automated updates, security patching, and backups will reduce the need for manual intervention, lowering maintenance costs.
  - o The panel's user-friendly interface and comprehensive documentation will reduce the time and effort required for training and troubleshooting.
- **Energy Efficiency**:
  - o By maximizing resource utilization and reducing the need for additional servers, the panel will contribute to lower energy consumption, resulting in cost savings and a smaller environmental footprint.

Other requirements

The hosting control panel must seamlessly integrate with ICTP's existing cloud infrastructure. This means that the software should be designed to work with current hardware, network configurations, and virtualization technologies, ensuring that no extensive changes are required to deploy the panel. By being compatible with existing systems, the control panel will help avoid disruptions and reduce the need for costly infrastructure upgrades, while still allowing for future scalability as ICTP's demands grow.

In addition to compatibility, the panel is expected to support a diverse range of website development languages and database systems. This multi-language support

ensures that developers can deploy applications written in Python, PHP, Node.js, and other popular languages without compatibility issues. Similarly, the ability to manage multiple database systems—such as MySQL, PostgreSQL, MongoDB, and Redis—enables ICTP to host a wide array of applications with differing backend requirements. This versatility is crucial for ICTP, as it allows the organization to support innovative and varied digital services on a single, unified platform.

Security is a paramount concern for the control panel. It must include robust features to protect the hosted systems and the underlying infrastructure. For instance, the integration of a comprehensive firewall is essential to manage both inbound and outbound network traffic based on a set of security rules. Moreover, secure SSH management is needed to ensure that remote access to servers is strictly controlled, preventing unauthorized access. The panel should also incorporate anti-intrusion tools that actively monitor for suspicious activities, detect potential breaches in real time, and automatically initiate preventive measures, such as blocking IP addresses or sending alerts to administrators. These security measures work together to build a resilient defense against various cyber threats.

Real-time monitoring and automated backup capabilities are critical for maintaining high availability and operational efficiency. The control panel should provide administrators with live insights into server performance, including CPU, memory, and disk usage, as well as network traffic metrics. This real-time data is invaluable for quickly identifying and addressing performance issues or resource bottlenecks. In parallel, the panel must support automated backups, ensuring that all critical data, configuration settings, and application files are regularly saved. These automated backups are essential for rapid disaster recovery, minimizing downtime, and ensuring that ICTP's operations can resume quickly in the event of a failure or data loss incident.

Finally, customization is a key feature of the hosting control panel. The system should offer advanced load balancing capabilities to efficiently distribute incoming traffic across multiple servers, thus enhancing performance and preventing overload on any single resource. In addition, role-based access control (RBAC) should be implemented to tailor user permissions according to specific roles and responsibilities. This ensures that only authorized personnel can access sensitive functionalities, thereby bolstering overall system security. Customizability also allows ICTP to configure the control panel to suit unique operational needs and future growth, making it a flexible and enduring solution for managing cloud resources.

Overall, these technical requirements—compatibility with existing infrastructure, multi-language and multi-database support, robust security features, real-time monitoring with automated backups, and high customizability—form the cornerstone of a hosting control panel that is both resilient and adaptive to ICTP's evolving needs.

Quality assurance and Testing requirements

. Functional Testing

- **Objective:** Verify that every feature of the hosting control panel works as intended.
- **Key Activities:**
  - Develop test cases for each feature, including website management, database handling, file management, FTP services, security modules, and more.
  - Use both automated and manual testing approaches to validate workflows.
  - Simulate real-world scenarios to ensure that multi-language support, Docker management, and other integrated functionalities operate correctly.
  - Perform regression testing after each update to confirm that new changes do not negatively impact existing functionalities.

2. Security Testing

- **Objective:** Identify and mitigate any vulnerabilities to safeguard the system and hosted resources.
- **Key Activities:**
  - Conduct vulnerability scans to detect potential security loopholes in the panel's code and configuration.
  - Test security features such as integrated firewalls, SSH management, and anti-intrusion tools under various attack scenarios.
  - Simulate brute force attacks and penetration tests to validate the effectiveness of access control measures.
  - Review the encryption protocols used for data in transit and at rest to ensure compliance with best practices.

3. Performance Testing

- **Objective:** Ensure the hosting control panel performs optimally under varying load conditions.
- **Key Activities:**
  - Create load testing scenarios to simulate peak traffic and resource usage, assessing how the system scales.
  - Monitor response times, CPU, memory, and disk utilization during tests.
  - Evaluate the system's load balancing efficiency and the speed of automated backup processes.
  - Identify and resolve performance bottlenecks to maintain high availability even during heavy usage.

4. Usability Testing

- **Objective:** Confirm that the panel is intuitive, user-friendly, and accessible to users with varying levels of technical expertise.
- **Key Activities:**
  - Conduct user testing sessions with both technical and non-technical users.
  - Collect feedback on the interface design, navigation, and overall ease-of-use.
  - Test the customization features, such as role-based access and dashboard configuration, to ensure they meet user expectations.
  - Implement iterative design improvements based on user feedback to enhance the overall experience.

5. Compliance Testing

- **Objective:** Verify that the hosting control panel adheres to all relevant compliance and regulatory standards.
- **Key Activities:**

- o Identify all applicable industry standards, legal, and regulatory requirements (such as data protection regulations and cybersecurity standards).
- o Test the system against compliance checklists to ensure all security and data handling measures are properly implemented.
- o Validate that audit logs, backup procedures, and access controls meet regulatory mandates.
- o Document and address any compliance gaps, ensuring the system remains audit-ready at all times.

Support/Maintenance Contract:

Upon successful completion of the system deployment, the system shall be handed over to the ICTP. The developing company shall provide customer support for 1 year. Further support and maintenance shall be governed by a separate Annual Maintenance Contract.

Key Deliverables

1. Inception Report
2. Unit Tests Report
3. Functional Tests Report
4. Security Test Report
5. Deployed System on Provided Cloud Infrastructure
6. Project Completion Report
7. Software Manual

Key Manpower, Qualification and Experiences required for Personnel:

S.N.	Specialist	Qualifications and Experiences Required	Person-days Design and other technical works (including field work) for Single Project
1	Team Leader	• Masters in Computer Science or Computer Engineering.	2 months

		• Thorough understanding of the Software Development Lifecycle. • At least 5 years of experience in implementation, evaluation of large scale web systems.	
2	Senior Software Engineer	• Bachelors in Computer Engineering or Information Systems or in similar discipline • Has Experience building back-end Development of the website and its systems. • Has at least 2 years of experience in developing enterprise-scale web applications. • Strong command in web security application concepts. 2 years of experience in design and development of enterprise scale applications.	2 months
3	Software Engineer (Backend Technologies)	• Bachelors in Computer Engineering or Information Systems or in similar discipline. • At least 1 year experience in developing web systems. • Experience in implementation of latest security measures for safe keeping of system.	2 months
4	Software Engineer (Frontend Technology)	• Bachelors in Computer Engineering or Information Systems or in similar discipline. • Experience Designing Layouts, User Interfaces for Enterprise applications. • Experience in implementation of latest security measures for safe keeping of system.	2 months
5	Cloud Engineer	• Bachelors in Computer Engineering or Information Systems or in similar discipline. • Experience Designing cloud system	2 months
6	Deployment Engineer	• Bachelors in Computer Engineering or Information Systems or in similar discipline.	2 months

		• At least 2 years of Experience in cloud deployment of enterprise-grade web applications.	
7	Security Engineer	• Bachelors in Computer Engineering or Information Systems or in similar discipline • Experience in implementation of system testing and security measures for safe keeping of website from malicious attacks.	2 months
8	Customer Support Officer	• Bachelor's degree in CSIT or Equivalent. • At least 6 months of experience in customer support management in Internet Technologies / Cloud Support.	2 months
9	Technical Documentation Writer	• Bachelors in Computer Science/Engineering or Equivalent • Strong command over English Language with at Least 2 years of experience in technical documentation	2 months
10	Finance Officer	• Bachelors in Business Studies or Equivalent • At least 2 years of experience in accounting and book-keeping.	2 months

S.N. 1,2,3,4,5 will be used for evaluation.

Firm Qualification

The consulting firm to be selected through the procurement procedure should meet following criteria:

The consulting firm to be selected through the procurement procedure should meet following criteria:

a. The developer company/firm must be a legal entity registered in Nepal.

b. The consulting company/firm must not be blacklisted by any agencies of Government of Nepal.

c. The firm must have a minimum of 2 years of demonstrable experience in designing, developing, and deploying enterprise-level control panel systems.

Mode of Payment

The payment for the amounts claimed upon submission of the reports mentioned above based on the prevailing laws and rules/regulation of the Government of Nepal. As per agreement, the developer can claim the payment in a single installment after submission and acceptance of the Final Report(s) or in installment as follows:

- Lump sum, 100% of the total amount after producing the acceptance report

D. Evaluation of Consultant's EOI Application

Consultant's EOI application which meets the eligibility criteria will be ranked on the basis of the Ranking Criteria.

i) Eligibility & Completeness Test	Compliance
Copy of Registration of the company/firm	
VAT/PAN Registration *(for National consulting firm only)*	
Tax Clearance/Tax Return Submission/Letter of Time Extension for Tax Return Submission 2080/81 *(for National consulting firm only)*	
In case of a natural person or firm/institution/company which is already declared blacklisted and ineligible by the GoN, any other new or existing firm/institution/company owned partially or fully by such Natural person or Owner or Board of director of blacklisted firm/institution/company; shall not be eligible consultant.	
EOI Form 1: Letter of Application	
EOI Form 2: Applicant's Information Form	
EOI Form 3: Experience (3(A) and 3(B))	
EOI Form 4: Capacity	
EOI Form 5: Qualification of Key Experts	

ii) EOI Evaluation Criteria	Insert Minimum Requirement if Applicable	Score [Out of 100%]
A. Qualification		
Qualification of Key Experts	*As per ToR*	*40%*
Experience of Key Experts	*As per ToR*	
B. Experience		
General Experience of consulting firm	*Should have at least 2 years of experience in the field of software development/support and/or IT consulting.* *Should have experience of working in projects funded by the Nepal Government.*	*50%*
Specific experience of consulting firm within last 2 years.	*The firm must have a minimum of 2 years of demonstrable experience in designing, developing, and deploying enterprise-level control panel systems.*	
Similar Geographical experience of consulting firm	*In order to show geographical competence, provide the details required as per the*	

	attached format	
C. Capacity		
Financial Capacity[1]	*Average annual turnover of best two years out of last seven years should be at least NRs. 2 Million*	***10%***

Note : In Case, a corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such firm's or JV EoI shall be excluded from the evaluation, if public entity receives instruction from Government of Nepal.

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[1] *Average turnover required shall not exceed 150% of cost estimate*

E. EOI Forms & Formats

Form 1. Letter of Application

Form 2. Applicant's information

Form 3. Experience *(General, Specific and Geographical)*

Form 4. Capacity

Form 5. Qualification of Key Experts

1. Letter of Application

(Letterhead paper of the Applicant or partner responsible for a joint venture, including full postal address, telephone no., fax and email address)

Date:

....

To,

Full Name of Client: _____

Full Address of Client: _____

Telephone No.: _____

Fax No.: _____

Email Address: _____

Sir/Madam,

1. Being duly authorized to represent and act on behalf of (hereinafter "the Applicant"), and having reviewed and fully understood all the short-listing information provided, the undersigned hereby apply to be short-listed by *[Insert name of Client)* as Consultant for *{Insert brief description of Work/Services}.*

2. Attached to this letter are photocopies of original documents defining:

   a) the Applicant's legal status;

   b) the principal place of business;

3. *[Insert name of Client]* and its authorized representatives are hereby authorized to verify the statements, documents, and information submitted in connection with this application. This Letter of Application will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves to verify statements and information provided in this application, or with regard to the resources, experience, and competence of the Applicant.

4. *[Insert name of Client)* and its authorized representatives are authorized to contact any of the signatories to this letter for any further information.[2]

5. All further communication concerning this Application should be addressed to the following person,

[Person]

[Company]

[Address]

[Phone, Fax, Email]

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[2] Applications by joint ventures should provide on a separate sheet, relevant information for each party to the Application.

6. We declare that, we have no conflict of interest in the proposed procurement proceedings and we have not been punished for an offense relating to the concerned profession or business and our Company/firm has not been declared ineligible.

7. We further confirm that, if any of our experts is engaged to prepare the TOR for any ensuing assignment resulting from our work product under this assignment, our firm, JV member or sub-consultant, and the expert(s) will be disqualified from short-listing and participation in the assignment.

8. The undersigned declares that the statements made and the information provided in the duly completed application are complete, true and correct in every detail.

Signed :

Name :

For and on behalf of (name of Applicant or partner of a joint venture):

2. Applicant's Information Form

(In case of joint venture of two or more firms to be filled separately for each constituent member)

1. Name of Firm/Company:

2. Type of Constitution (*Partnership/ Pvt. Ltd/Public Ltd/ Public Sector/ NGO)*

3. Date of Registration / Commencement of Business *(Please specify):*

4. Country of Registration:

5. Registered Office/Place of Business:

6. Telephone No; Fax No; E-Mail Address

7. Name of Authorized Contact Person / Designation/ Address/Telephone:

8. Name of Authorized Local Agent /Address/Telephone:

9. Consultant's Organization:

10. Total number of staff:

11. Number of regular professional staff:

(Provide Company Profile with description of the background and organization of the Consultant and, if applicable, for each joint venture partner for this assignment.)

3. Experience

3(A). General Work Experience

(Details of assignments undertaken. Each consultant or member of a JV must fill in this form.)

S. N.	Name of assignment	Location	Value of Contract	Year Completed	Client	Description of work carried *out*
1.						
2.						
3.						
4.						
5.						
6.						
7.						

3(B). Specific Experience

Details of similar assignments undertaken in the previous seven years
(In case of joint venture of two or more firms to be filled separately for each constituent member)

Assignment name:	Approx. value of the contract (in current NRs; US$ or Euro)[3]:
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total No. of person-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current NRs; US$ or Euro):
Start date (month/year): Completion date (month/year):	No. of professional person-months provided by the joint venture partners or the Sub-Consultants:
Name of joint venture partner or sub-Consultants, if any:	Narrative description of Project:
Description of actual services provided in the assignment: **Note: Provide highlight on similar services provided by the consultant as required by the EOI assignment.**	

Firm's Name: _____

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[3] Consultant should state value in the currency as mentioned in the contract

3(C). Geographic Experience

Experience of working in similar geographic region or country
(In case of joint venture of two or more firms to be filled separately for each constituent member)

No	Name of the Project	Location (Country/ Region)	Execution Year and Duration
1.			
2.			
3.			
4.			
5.			
6.			
7.			

4. Capacity

4(A). Financial Capacity

(In case of joint venture of two or more firms to be filled separately for each constituent member)

Annual Turnover	
Year	**Amount Currency**

- **Average Annual Turnover of Best of 3 Fiscal Year Of Last 7 Fiscal Years**

(Note: Supporting documents for Average Turnover should be submitted for the above.)

5. Key Experts *(Include details of Key Experts only)*

(In case of joint venture of two or more firms to be filled separately for each constituent member)

SN	Name	Position	Highest Qualification	Work Experience (in year)	Specific Work Experience (in year)	Nationality
1						
2						
3						
4						
5						

(Please insert more rows as necessary)