

University of the Virgin Islands
Research and Technology Park
Telecommunications and IT
Infrastructure

Request for Proposal (RFP)

July 2003

Table of Contents

1. INTRODUCTION AND OBJECTIVES..... 3

1.1 BACKGROUND 3

1.2 PRESENT STATUS 3

1.3 PURPOSE OF THIS RFP..... 4

2. PROJECT SUMMARY..... 4

2.1 THE ROLE OF TELECOMMUNICATIONS 5

2.2 RESEARCH AND TECHNOLOGY PARK ENTERPRISE NETWORK 5

3. TELECOM INFRASTRUCTURE REQUIREMENTS 6

3.1 TRANSPORT INFRASTRUCTURE 6

3.2 ADVANCED NETWORK TECHNOLOGY FEATURES 7

3.3 UVIRTPARK ENTERPRISE NETWORK 7

4. SYSTEM-WIDE REQUIREMENTS..... 9

4.1 NETWORK SCALABILITY 9

4.2 PERFORMANCE 10

4.3 AVAILABILITY 10

4.4 MANAGEMENT 11

4.5 SECURITY 11

4.6 DISASTER MITIGATION/RECOVERY 12

5. RFP SUBMITTAL REQUIREMENTS 12

5.1 BUSINESS INFORMATION..... 12

5.2 PRODUCTS, SERVICES, AND PRICING 13

5.3 QUALIFICATIONS AND EXPERIENCE..... 13

5.4 TRAINING AND SUPPORT 13

5.5 BUSINESS PROPOSAL..... 14

5.6 COST OF RESPONSE 14

5.7 ACCEPTANCE OF PARTNERSHIP RESPONSE..... 14

5.8 NO BINDING CONTRACT 14

5.9 US CURRENCY 15

6. CRITERIA FOR SELECTION..... 15

7. SUBMITTAL INSTRUCTIONS 16

1. Introduction and Objectives

1.1 Background

The University of the Virgin Islands (UVI) has secured legislative support and initial funding for development of a Research and Technology Park (RTPark) on St. Croix. The project will be undertaken in collaboration with the private and public sectors to promote business development in the territory. UVI envisions the following main functions of the UVIRTPark:

- Create an environment that will attract high technology, environment-friendly businesses to the island, thereby stimulating and diversifying the economy.
- Increase the number of high quality jobs for which UVI can train Virgin Islanders.
- Improve academic research opportunities for UVI.
- Make high tech resources available to UVI for teaching and community development.
- Generate revenues for the University through partnership with strategic service providers and tenants.

The UVIRTPark will be located on the island of St. Croix, a major node for intercontinental fiber optic transmission lines. At present, two such lines exist, designated in this document as the AT&T and Global Crossing cables. These designations are purely for the purposes of identifying the two cables. It will be the responsibility of respondents to establish any additional detailed information regarding these facilities that they may require in crafting their response to this RFP. The initial development of the UVIRTPark will take place on 10 acres of land on the St. Croix campus of the University. The unique combination of a favorable tax environment, high bandwidth communications facilities, a near-shore U.S. jurisdiction, and tropical climate make St. Croix an ideal location for high technology businesses.

1.2 Present Status

The Research and Technology Park is currently in the early stage of development. The UVIRTPark Board of Directors has been seated, a master plan for the UVIRTPark is in development, office building locations and approximate sizes are known, but office space configuration, size and location of wiring closets, risers, and data space have not been defined. A hosting facility location is known and planned, The overall telecommunications infrastructure requirements that been defined are the basis for this RFP.

1.3 Purpose of this RFP

A critical requirement for the success of the UVIRTPark is the development and construction of an adequate telecommunications infrastructure to support the UVIRTPark as well as connect the UVIRTPARK with the sites where the intercontinental communications come onshore (the “cable heads”).

The purpose of this Request for Proposal (RFP) is to inform the vendor community about the UVIRTPark’s interest in a strategic partner to develop, construct and operate the required telecommunication facilities and to invite proposals for consideration. A strategic partnership is a relationship with a business that links a partner’s responsibility for delivery of a core service offering with a business proposition that will demonstrably help the UVIRTPark to accomplish its missions and objectives.

Specifically, the UVIRTPark is seeking the following information from telecommunications systems integrators, service providers, and/or network equipment vendors:

- A technical proposal providing information about the vendors’ products, services and capabilities in response to the technical requirements outlined in this RFP.
- A business proposal setting out the proposed terms and conditions for a strategic partnership designed to help the UVIRTPark accomplish the objectives of business attraction, business investment, job creation, workforce development and employment of residents, collaboration with the University and operating revenues for the Park and UVI.

If one vendor provides a comprehensive proposal in response to this RFP, the UVIRTPark may negotiate with that vendor immediately, if it is to the Park’s advantage. The UVIRTPark may establish partner relationships with one or more vendor(s) to provide various levels of support and /or different service components.

2. Project Summary

The University of the Virgin Islands Research and Technology Park concept was created to improve the economy of the Virgin Islands and the academic and financial capabilities of the University. Guided by this vision, the UVI Board of Trustees approved a proposal to create a university-related research and technology park. The proposal envisions the development of a world-class, mixed use, research and technology park and incubator facility that will spur the territory's economic development and broaden the University's teaching and research capabilities.

The UVIRTPark will provide a home base for companies engaged in the research, development and commercialization of information technologies, companies whose business activities are driven by information technology, as well as businesses engaged in electronic commerce. The occupants of the UVIRTPark will therefore be a mix of

different business and organizations of varying sizes. This will include, but not be limited to the following:

- Large-scale data centers with server farms providing managed services, web hosting and co-location facilities
- Multi-tenant facilities housing a number of small companies and engaged in e-commerce and other knowledge-based businesses, and also companies providing ancillary support services to Park tenants
- Dedicated facilities for larger companies engaged in electronic commerce and other knowledge-based business.
- Workforce development, training and education programs that may include computer labs requiring internet connectivity.

Based on this, there will be a range of different telecommunications requirements as described in the remainder of this document.

2.1 The Role of Telecommunications

The function of the telecommunications system will be to provide a robust linkage between the intercontinental fiber cable heads and the Research Park, and the necessary infrastructure within the UVIRTPark to enable all of the different occupants of the Park to conduct their business.

On this basis, the Research and Technology Park is seeking service providers who can deliver the following:

- Research and Technology Park Enterprise Network, a multi-building campus converged network capable of supporting voice, data, voice over IP, and video.
- Connectivity between the product data center to be located at the intercontinental fiber connection cable heads, the cable heads and the UVIRTPark Enterprise Network

2.2 Research and Technology Park Enterprise Network

The Research and Technology Park will consist of several office buildings for lease that will serve businesses from the early stages of development (as a business incubator) to fairly large, established companies that will require a flexible, state of the art network. The UVIRTPark desires the UVIRTPark Enterprise Network be designed to offer tenants the latest in cost-effective technology:

- Converged network—one network for voice, data, and video
- Option for IP telephony to lower costs, simplify telephone management
- Scalable architecture to accommodate growth

- Secure, reliable wireless access throughout the Park and the University campuses

The highest priority requirement for the UVIRTPark enterprise network will be scalability and flexibility, followed by reliable high-speed connectivity service. The Park must also provide a high degree of security, not only from outside sources, but compartmentalization between tenants. In addition telecommunication partners should be competent at providing the following services:

- Engineering design of the applicable telecommunication infrastructure
- Construction and test of the required transport links
- Purchase and delivery of necessary hardware and software
- Staging and testing of the accepted network design
- Installation and configuration of equipment and software
- Training of select the UVIRTPark employees in operations and management of the infrastructure.
- Documentation of the new infrastructure, including drawings, configuration parameters and settings, technical documents and operator manuals.
- Maintenance and support of the new infrastructure.

3. Telecom Infrastructure Requirements

The business plans for the UVIRTPark make it imperative that the infrastructure provides the flexibility to support its changing technology and e-business environments with the addition of new applications, perpetual changes to both computing and communications hardware, while taking advantage of innovations in networking technologies.

3.1 Transport Infrastructure

- 3.1.1 The transport infrastructure refers to the transport devices that connect the UVIRTPark to the carrier providers and eventually the Internet. The UVIRTPark anticipates this will consist of a fiber optic transport facility to be constructed on St. Croix between the UVIRTPark campus and the intercontinental cable heads.

Please provide technical specifications and information on your recommendation for transport networking equipment.

- 1) If more than one vendor's equipment is to be used, provide details on how you will provide consistent support, component interoperability, and support for standard protocols, uniform training requirements, and a common equipment migration and upgrade planning.

- 2) Please explain your warranty support and any enhanced support contracts available, including options for 24x7 support, next day delivery for repair parts, and web-based software support.

3.1.2 Bandwidth

- 1) The UVIRTPark will require at least two (2) Tier-1 ISP vendors to provide peering points to the Internet and use routing protocols that will automatically respond to changes in peer network status.
- 2) The transport network should make use of BGP4 routing protocols in their interaction with these ISP vendors, in order to ensure robust operation during link outages or congestion.
- 3) Initially, there should be at least one (1) connection (OC-3 data rate at a minimum) to each of the ISP vendors. The UVIRTPark would like comments on the availability and pricing of higher rates, up to OC-192.
- 4) A point-to-point wireless link between the cable heads and the UVIRTPark should be provided as the initial communications link while the fiber is being deployed. Once the fiber link is operational, the wireless link will be kept as a back up link.

3.2 Advanced Network Technology Features

Please describe how your products or services provide any of the following advanced network technology features:

- 1) Multi-Protocol Label Switching (MPLS) to provide consistent quality of service (QOS) characteristics or a guaranteed service level agreement (SLA) for transmission throughput delay and rapid provisioning of these services.
- 2) Virtual Private Network (VPN) technology. This technology provides secure connections between corporate locations that can be provisioned on demand and billed according to usage.

3.3 UVIRTPARK Enterprise Network

The UVIRTPark Enterprise Network refers to the equipment used to connect the local systems at the UVIRTPark (servers, desktop computers, printers, etc) to each other and the transport infrastructure. The UVIRTPark envisions a single converged network for data, voice, and video services, with the features listed below. The following table contains a technical feature, how it is relevant to the UVIRTPark, and an example of how it could be implemented.

Please provide comments on how your products provide these features in an enterprise campus network.

Feature	Relevance to the	Implementation Example
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	UVIRTPARK	
Scaleable Bandwidth	Required to support content-rich hosting and demand of multiple information based businesses at the UVIRTPARK	Use of redundant optical switches with scalable expansion capability to additional wavelengths, fibers; Gigabit Ethernet technology
Converged Network	Supports wide variety of applications; most flexible and scalable architecture; Lower cost of operation, maintenance	Voice over IP Telephone systems Video-on-demand broadcasting IP Video teleconferencing
Wireless Access	Allows UVIRTPARK employees, UVI students, access to the network from anywhere on the UVIRTPARK or campus increases productivity.	802.11b wireless access points and cards for laptop computers
Quality of Service (QoS)	Crisp response times for hosting facility users; managed delay variation (jitter), bandwidth, and packet loss parameters to meet the diverse needs of UVIRTPARK voice, video and data applications	Network application recognition for classifying traffic on an applications basis; test systems for end-to-end QoS measurements; Resource Reservation Protocol (RSVP) signaling for admission control and reservation of resources.
Security	A business enabler at the UVIRTPARK ensures the security of the network through authentication, encryption, and fail over. Compartmenting between tenants.	State-of-the-art security features include application-based filtering (context-based access control), Intrusion Detection, per-user authentication and authorization, and real-time alerts.
High Availability	UVIRTPARK businesses will require network availability for voice, data, and customer access.	Fault-tolerant network devices to automatically identify and overcome failures; Resilient network technologies such as fail-over protocols to bring resilience to the critical junction between hosts and backbone links
Management	UVIRTPARK businesses and UVI will depend on the network as a critical business asset that will be carefully monitored for fault detection and performance optimization.	Network management platforms, integrating and correlating alarms and configuration information from network element management systems; trouble tracking systems; maintenance workflow automation systems.

3.1.3 Enterprise Network Equipment

- 1) Please provide your recommendation for the UVIRTPark's enterprise networking equipment. This should include switches, routers, firewalls, wireless access points.
- 2) Please provide information on your recommended solution for telephone and unified messaging for the UVIRTPark enterprise.
- 3) If more than one vendor's equipment is to be used, provide details on how you will provide consistent support, component interoperability, and support for standard

protocols, uniform training requirements, and a common equipment migration and upgrade planning.

- 4) Please explain your warranty support and any enhance support contracts available, including options for 24x7 support, next day delivery for repair parts, and web-based software support.

3.1.4 Cabling

- 1) Provide information on your (or your preferred subcontractor's) cabling experience.
- 2) Provide information on your preferred cable management software used to keep track of the number of cables, their location, and what they connect.

3.1.5 Bandwidth

- 1) The Transport Infrastructure, described in Section 3.1, will provide telecommunications connections between the cable points, the Hosting Facility and the campus network.
- 2) The hosting facility will require at least two (2) Tier-1 ISP vendors to provide peering points to the Internet and use routing protocols that will automatically respond to changes in peer network status.
- 3) The transport network should make use of BGP4 routing protocols in their interaction with these ISP vendors, in order to ensure robust operation during link outages or congestion.
- 4) Initially, there should be at least one (1) connection (OC-3 data rate at a minimum) to each of the ISP vendors. The UVIRTPark would like comments on the availability and pricing of higher rates, up to OC-192.

4. System-Wide Requirements

The following sections describe requirements from any provider.

4.1 Network Scalability

A scalable architecture will ensure that the infrastructure can quickly respond to changing telecom conditions brought about by rapid changes in the volume of traffic, the number of users, new tenants, suppliers, customers, or other business partners.

Please provide a description of your product features that support network scalability.

4.2 Performance

The UVIRTPark network infrastructure supports several business critical applications, some of which have stringent quality of service (QoS) requirements.

Please comment on the following parameters for the UVIRTPark network.

Parameter	Required Value	Requirement Remarks
Link Bandwidth, Desktop	100 Mbps full duplex	Upgrade to 1 Gbps with no change in cabling
Link Bandwidth, Distribution	1 Gbps, full duplex	Upgrade to 10 Gbps with no change in cabling
Link Bandwidth, Core	OC-3 minimum	(Depends on proposed core technology)
Latency	Less than 50 ms	Required for voice quality per G.729
Packet Loss	Less than 0.1%	Required for voice quality per G.729

Describe how your network elements measure and report performance.

4.3 Availability

A major concern for UVIRTPark tenants and customers will be the network's availability—the measure of the percentage of time that the network is actually available to transport business data such that users and customers are assured of a satisfactory experience. Providing a high availability network protects against financial loss and lost productivity. The UVIRTPark's IT staff can focus on increasing efficiency rather than reacting to problems.

Please comment on the following available requirements:

- 1) UVIRTPark Enterprise Network (connections within the UVIRTPark): 99.999%

The converged enterprise network planned for the UVIRTPark will provide telephone service to tenant businesses within the UVIRTPark. They will expect to have reliability of service at least as good as phone service in the past. This will require the

converged enterprise network to be engineered to the same high availability standards as legacy telephone networks.

- 1) Telecommunications Infrastructure (connections between the UVIRTPark and anywhere else): 99.99%

Less than one hour down time per year is acceptable for most businesses, and will hold down the cost of the telecom infrastructure.

4.4 Management

As with any critical business asset, management requires accurate, detailed, and timely information to determine to what extent the network is meeting the business goals. The UVIRTPark is considering an option to build a network operations center (NOC) on the UVIRTPark site.

Please provide information on your experience designing and deploying network operations centers.

- 1) Describe your preferred network management platform and your experience in deploying and supporting it.
- 2) Please describe how your managed platform/service provides the following functions:
 - Fault Management
 - Configuration Management
 - Account Management
 - Performance Management
 - Security Management
 - Network Planning
 - Operation, Administration, and Maintenance

4.5 Security

The majority of tenants that the University wishes to attract to the UVIRTPark and hosting sites will use information as the product itself as well as to track and manage users of the information. Compromise or unauthorized access to the information may do irreparable damage to the business—therefore security is a critical requirement for both the Hosting Facility and the Research and Technology Park.

Please provide a comprehensive description of your network security experience including the following areas:

- 1) Prevention: The UVIRTPark will require a comprehensive tool set, policies, and methodologies to prevent loss or compromise of tenant data. Products, systems, and tools that prevent unauthorized access to tenant data via the network or physical access. The UVIRTPark will require tools and procedures to perform vulnerability assessments and penetration testing.
- 2) Detection: The UVIRTPark will require Intrusion Detection Systems, firewall analysis applications that provide automated reports to analyze log files
- 3) Response: The UVIRTPark will require development of security incident response procedures. Provide a description of your “best practice” development experience for Information Systems Security policy development.

4.6 Disaster Mitigation/Recovery

Disaster recovery planning refers to the development work required to protect the computer systems and data of an enterprise by planning the recovery of company systems in the event of natural or unnatural disasters. The location of the Hosting Center and the UVIRTPark on the island of St. Croix make disaster planning a critical activity. In addition to the usual data center hazards of power surges, lightning, and accidents, the island is seismically active, experiences hurricanes and tropical storm surges.

Please describe your capabilities and experience in deploying data centers and telecommunications infrastructure on St. Croix or other tropical island environments.

5. RFP SUBMITTAL REQUIREMENTS

Please provide the following information about your company, applicable project partners and preferred subcontractors, if applicable.

5.1 Business Information

- 1) Corporate headquarters address and contact information
- 2) Business license
- 3) Corporate Principals, applicable partners
- 4) Size of the business, in number of employees, annual revenue, number and location of offices, and number of clients.
- 5) List of any sales or support offices located in the Virgin Islands territory.
- 6) List of similar projects, their completion dates, and a description of the size, number of nodes, and major technologies deployed together with references.

5.2 Products, Services, and Pricing

- 1) Description of your product offerings that you would propose for each of the UVIRTPark infrastructure segments. Provide the list price for each service and product, estimated prices of these services for park tenants and discounted pricing available to the UVIRTPark administration and UVI.
- 2) Provide a budgetary estimate for implementation of each of the UVIRTPark infrastructure segments.
- 3) List of your professional services offerings that you would propose for this project.

5.3 Qualifications and Experience

- 1) Identify your project team and describe your project management qualifications and methodology.
- 2) Describe your design experience with converged networks, including each of the following technologies:
 - 3) Voice over IP
 - 4) Content Delivery
 - 5) Virtual Private Networks
 - 6) Video conferencing
- 7) Describe your implementation and deployment services.
- 8) Describe your engineering staff training in installation, configuration, and operation of the equipment.
- 9) Describe your staging capabilities (receive all products, set up, configure, & test all products and configurations in a staging area offsite)

5.4 Training and Support

- 1) The UVIRTPARK desires that the operation of the network be widely understood at all levels of the organization. Describe training services that will be available for the UVIRTPark management, IT professionals, Network Operations Staff, and users.
- 2) Please provide information on your support options for:
 - On-site
 - Telephone
 - Email

- Web access
- 3) Describe your support organization, including typical response and escalation procedures, service metrics, and customer satisfaction ratings.

5.5 Business Proposal

The UVIRTPark is interested in negotiating a mutually beneficial strategic partnership for both the partner and the UVIRTPark. The business proposal should:

- 1) Describe in detail a business proposition for UVIRTPark that addresses how a partnership will help the UVIRTPark advance the following objectives:
 - Attraction of businesses to the UVIRTPark
 - Job creation and business investment
 - Workforce development and employment of residents
 - Collaboration with the University
 - Revenues for the support of the UVIRTPark and the University
 - Other benefits to the UVIRTPark.
- 2) Outline the proposed terms and conditions associated with the partnership.

5.6 Cost of Response

The preparation and submission of a response to this Request for Proposal (the "RFP") is voluntary and any costs associated with such preparation and submission is solely the responsibility of the party submitting the response.

5.7 Acceptance of Partnership Response

The UVIRTPark reserves the right to accept or reject any or all information received in response to this RFP. The UVIRTPark is under no obligation to accept any of the services detailed in the RFP and, should it decide to abandon the same, it may, at any time, request any additional information, including evidence of financial status, invite further expressions of interest for the provision of the telecommunications services or enter into any discussions or negotiations with any party for the provision of such services.

5.8 No Binding Contract

The UVIRTPARK may, after reviewing the Information received, enter into discussions with one or more of the telecommunication vendors without such discussions in any way creating a binding contract between The UVIRTPark and any such vendor There will be no binding agreement with The UVIRTPark until a formal, written agreement has been

negotiated with a vendor and that agreement has been approved by The UVIRTPark's Board of Directors.

5.9 US Currency

All monetary references in the Partnership Response must be in United States currency.

The successful vendor must, either before or concurrently with the execution of the a formal contract with the UVIRTPark, provide evidence that it holds a current business license from the US Virgin Islands and any and all other licenses and permits required by any applicable government or authority with respect of the carrying on of the telecommunications business.

6. CRITERIA FOR SELECTION

The UVIRTPark will evaluate each response to this RFP using the following criteria, which is not intended to be exhaustive and is not ranked in order of preference of priority:

- 1) Partnership Potential and Business Model: The responses received will be evaluated on the readiness to forge a significant partnership with The UVIRTPark, stakeholder organizations and other partners. The elements of synergy, trust, commitment to the goal, ability, reliability, flexibility, willingness to share risk, and the strategic importance of the project to the business, will be assessed.
- 2) Sustainability: A sound business case and sustainability study is a key prerequisite for a successful UVIRTPark. Sustainability of the overall telecommunications connectivity development will be a key objective for the UVIRTPark. Innovative Information which contributes to the overall sustainability of the UVIRTPark will be of high value. A primary goal of the UVIRTPark is to become a financially self-sustaining entity generating funding for the support of the University, and thus avoid becoming a financial burden to the University and VI Government. Partnerships will be based on the value of financial commitments (cash & in kind) risk-sharing, and other value added contributions to the overall sustainability of the project.
- 3) Solutions Capability: Solutions capabilities represent the degree to which the proposed solution meets the project's requirements. This includes demonstrated provision of the required elements to provide a solution including modularity, performance, capacity, flexibility, scalability, reliability, and availability.

The company's ability to provide the complete solution also will be evaluated; however, solutions that do not support all of the functional opportunities may still be selected in combination with other solution components from other partners. All applicants must, therefore, be prepared to work in open partnership with the UVIRTPark and any other selected partners to integrate their respective technology solutions.

- 4) Professional Service Quality: The complexity of this project is not only the technical

solution, but rather:

- a. The paradigm shift in how each institution- government, partner and business work together for the betterment of the community; and
- b. The integration of the varied systems within the community and government necessary to enable seamless service to the community.
- c. The development, implementation and maintenance methodologies of solutions offered

Clear information on development strategies for new solutions, and information on status and client-base for previously developed solutions, will help us to assess these criteria.

While the UVIRTPark desires the quickest possible implementation, it is also concerned that the process be managed carefully, with consideration of scheduling constraints in evidence. Applicant's implementation schedules should be detailed, realistic and align with the UVIRTPark's phasing and project management methodology.

The ability for the partner to provide responsive and versatile local and remote support is very important, such that problems are resolved or escalated quickly and that remote support sites are not hindered by any time differential. Please provide information on all levels of support offered.

- 5) Quality of Submission- The UVIRTPark places considerable importance on the partner's professionalism and commitment. In recognition of this, the content, quality, completeness and thoroughness of the response will be considered as representative of the applicant's ability to understand and complete the project at hand. Potential partners will be given the opportunity to demonstrate and present their response to the UVIRTPark. Quality and thoroughness of these sessions will also be assessed.

7. SUBMITTAL INSTRUCTIONS

SUBMISSIONS, INQUIRIES AND CONTACT INFORMATION

Five (5) Copies of the Technical Proposal and the Business Proposal must be submitted no later than 5:00 p.m. local time on August 31, 2003 at the address listed below. Submissions may be emailed but must also be submitted in hard copy format to the address below. All inquiries must be submitted in hardcopy format to:

Malcolm C. Kirwan
Executive Director
Research & Technology Park
University of the Virgin Islands
No. 2 John Brewers Bay

St. Thomas, U.S. Virgin Islands, 00802

Tel: 340-693-1400

Fax: 340-693-1405

Email: mkirwan@uvi.edu

UVIRTPARK Website: <http://RTPark.uvi.edu>

UVI Website: <http://www.uvi.edu>