

# GAC Capacity Development Workshop

Community Forum

ICANN 79

San Juan, Puerto Rico

March 2, 2024



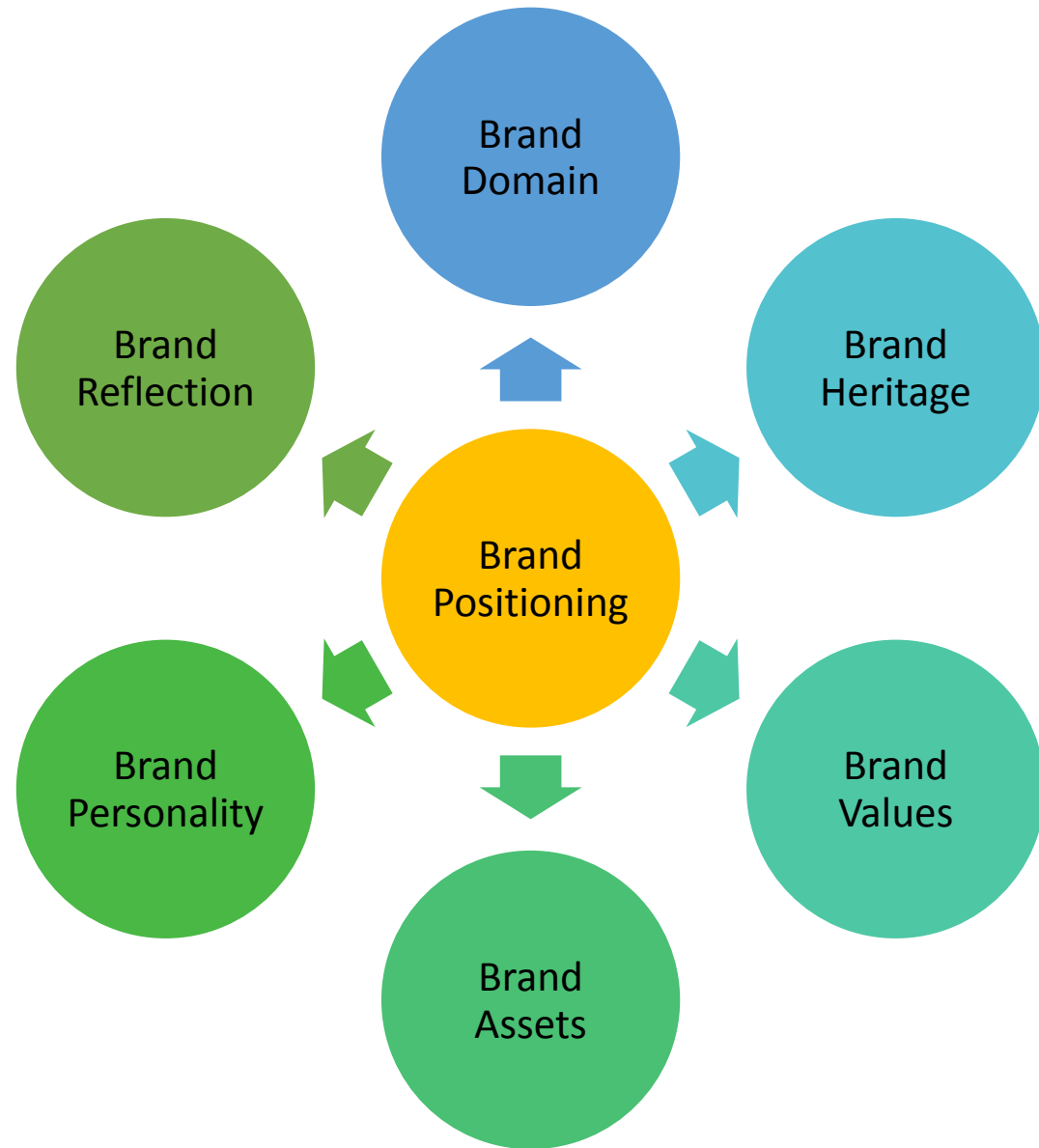
**PUERTO RICO**  
TOP LEVEL DOMAIN



# Early Beginnings

An Introspection

# Anatomy of a Brand



# .pr Brand Anatomy Model

## Domain

- Registry .pr
- Customer Service and Technical Excellence
- Trust

## Heritage

- Dr. Oscar Moreno de Ayala
- Puerto Rico

## Values

- Community Values
- Human Capital Development
- Technological Development
- Excellence of Service

## Assets

- Intellectual Property - .pr, .com.pr, .net.pr, .org.pr...
- DNSSEC, AnyCast, L-Root Server, IPv6
- Technological Acumen

## Personality

- Avant Guard registry
  - (DNSSEC, AnyCast, L-Root Server, IPv6)
- Trustworthy
- No non-sense hassle free Business Model

## Reflection

- Purchased more by Corporations (Foreign and Local)
- Technology as a means to improve (self and country)
- Trustworthiness

# Our Experience

Difficult and Complex Domain Name Registration Process

Lack of Upselling Capacity during the Registration Process

Difficult or Limited Payment Methods Options

Lack of an API that can automatically register domain names in volumes

Registrars and registrants lacked the ability to manage domain names autonomously

How can we recruit more registrars and registrants to offer or register our domain names respectively?

The Pain

The diagram consists of six vertical bars of varying heights, arranged from left to right. The bars are colored in a gradient from blue on the left to green on the right. A large, light blue double-headed arrow is positioned at the bottom, spanning the width of all six bars. The text 'The Pain' is centered within this arrow. The text inside each bar describes a specific pain point related to domain registration.

# Our Experience

Non-Aligned  
Business Model  
with the reality of  
the ccTLD

Marketing  
Strategies that did  
not reach its  
objectives

Lack of Financial  
and Human  
Resources  
dedicated to  
achieve  
Technological and  
Marketing  
Objectives

Substantial and  
Challenging  
Additions to the  
ccTLD Ecosystem

New gTLDs  
New Biz Models  
New Commercial  
Strategies  
The Goal and  
Thinking Mode  
changes



The Cause of the Pain

# Business Model

The Stakeholders (registry, Registrar & Registrant) willing to engage in electronic business must come to terms with three (3) main elements:

*“...in theory, there is no difference between theory and practice; in practice, there is...”*  
Chuck Reid

Level of Economic Involvement

Choreography of the Inter-Organizational Process

Services to be implemented within the Choreography

- Registry Model
- Domain name registration
- Mgmt. of registered domain names
- Distribution Channel
- Added Value (IaaS & SaaS)

$$\sum_{1 \rightarrow \infty}^n \{(\text{Mgmt} + \text{Admin}) + (\text{Distrib Channel} + \text{added Value})\} = \text{Success}$$



# Commercial Strategy

Rationalize the Domain Name Registration and Management Process

Offer Domain Names in Bundles of Related Services

Take advantage of the upsell opportunity during the domain name registration process

Accept various payment methods

Develop white label tools (POS & Control Panels) that facilitate the registration and management of domain names by the registrar, its resellers and their resellers (hierarchical)

# 3D IT Leadership Model

## *3D IT Leadership Model*

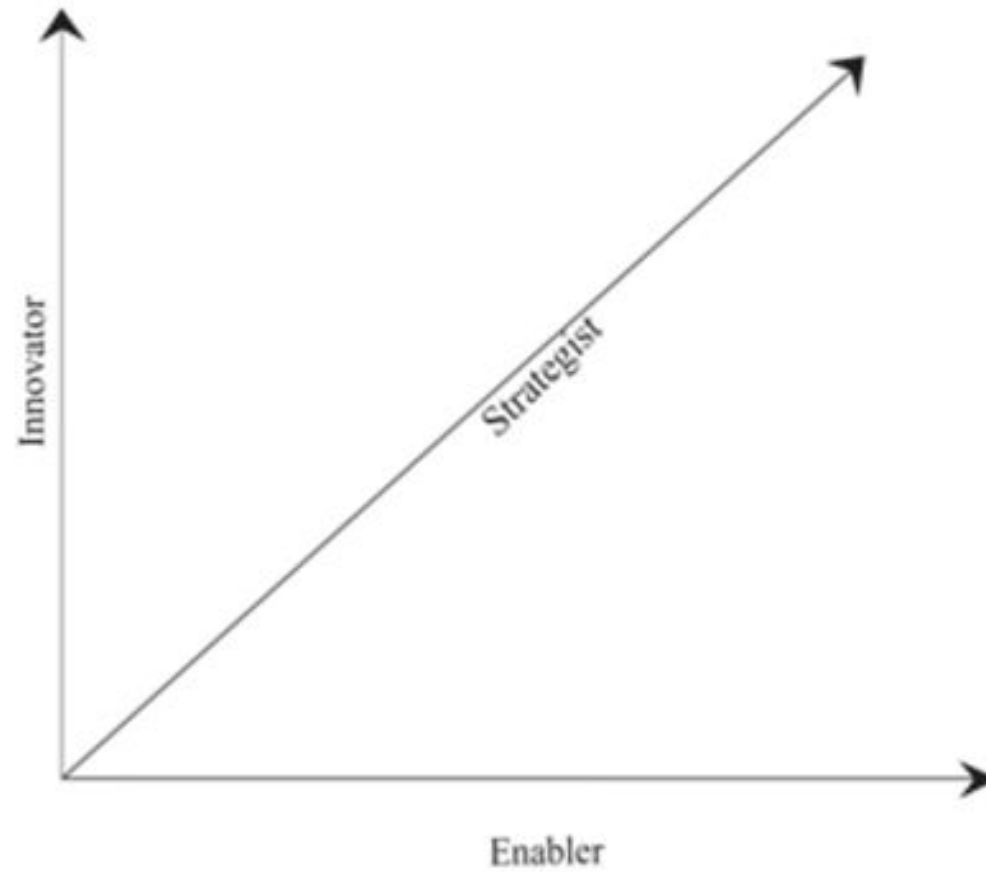
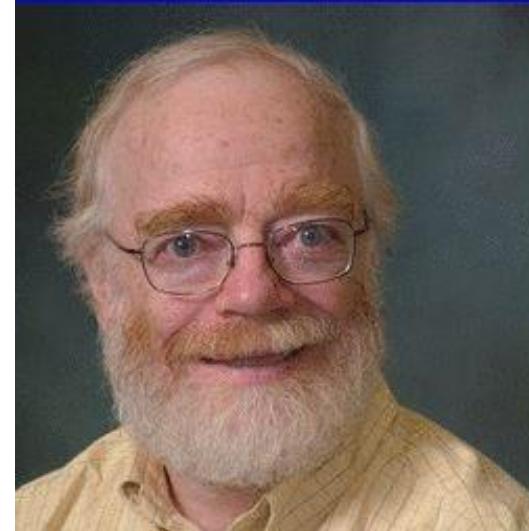


Figure 1. Strategist, innovator, and enabler are three critical attributes of the IT transformational leader.

# .PR Innovators of the Internet

- 1989 – The .pr registry operation launches as Gauss Research Laboratory
- 1990 – Steve Bellovin discovers a major flaw in the DNS
- 1995 – Bellovin publishes his research and DNSSEC becomes a topic in IETF
- 1998 – Dan Kaminsky discovers a security flaw
- 1999 – The DNS protocol is published (RFC 2535)
- 2003 – .pr joins the ccNSO (ICANN18)
- 2005 – RFC 2535 was updated with RFCs 4033, 4034, and 4035
- 2005 – .SE becomes the first ccTLD to sign the zone with DNSSEC in the world
- 2006 – .PR becomes the first ccTLD to sign the zone with DNSSEC in the Americas



Prof. Steve Bellovin



Dan Kaminsky

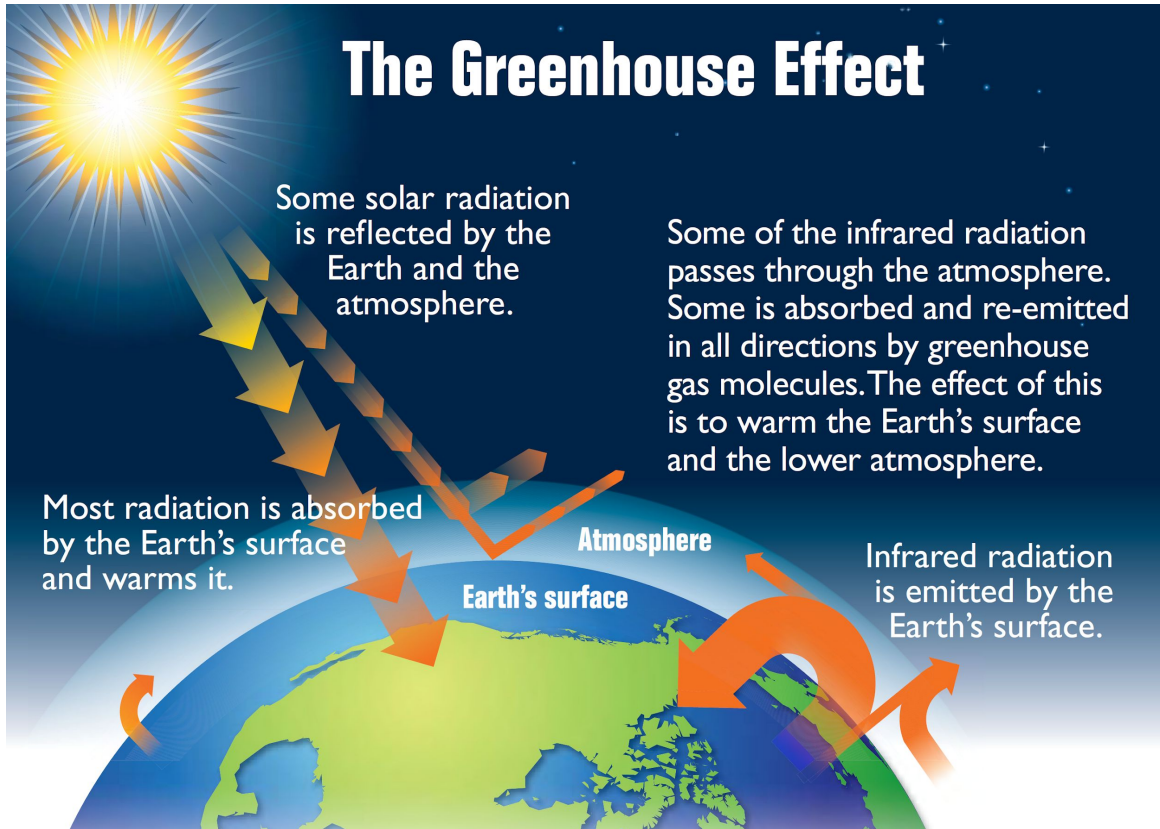
# **.PR Innovators of the Internet (continues)**

- 2005 – .SE becomes the first ccTLD to sign the zone with DNSSEC in the world
- 2006 – .PR becomes the first ccTLD to sign the zone with DNSSEC in the Americas
- 2007 – Celebrates ICANN29
- 2008 – RFC 5155 describes a new DNSSEC record to address privacy issues
- 2010 – July 15 the root zone was signed (KSK\_2010)
  - July 29, .edu was signed
  - December 9, .net was signed
- 2011 – March 31, .com was signed
- 2018 – Celebrates ICANN61
- 2024 – Celebrates ICANN79

# Difficult Times

**.pr is** robust, resilient, and stable

**Trustworthy**



# How is it relevant?

air-sea exchange

# Climate Change

river

mixing

sediment  
exchange

production  
respiration

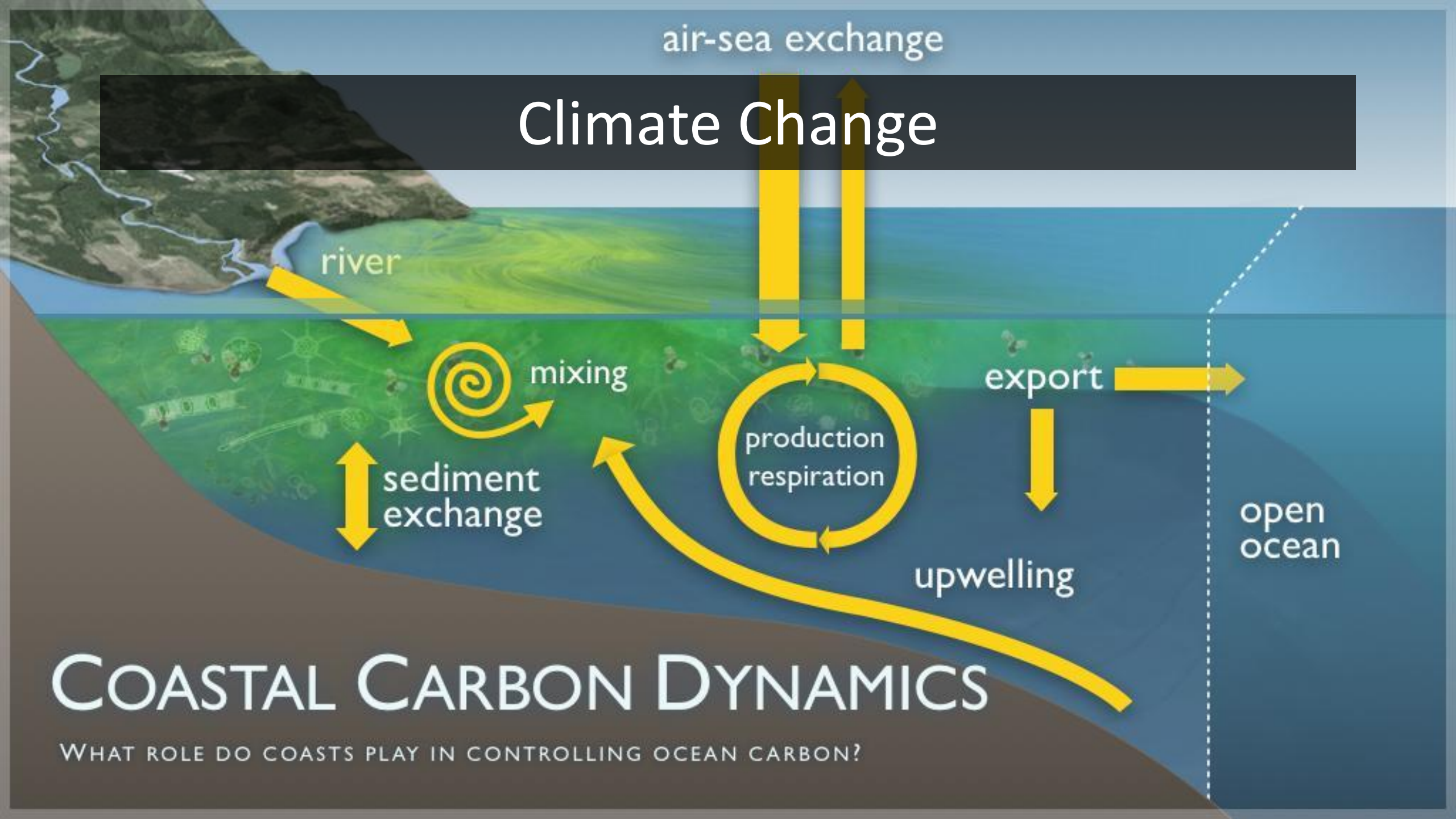
export

upwelling

open  
ocean

## COASTAL CARBON DYNAMICS

WHAT ROLE DO COASTS PLAY IN CONTROLLING OCEAN CARBON?



An aerial satellite-style photograph of a large hurricane over the ocean. The hurricane has a distinct eye in the center, surrounded by a dense ring of clouds (the eye wall). The outer clouds spiral outwards, creating a large, circular storm system. The ocean surface is visible in the lower-left corner, showing a dark blue color. The text "Climate Change" is overlaid on the left side of the image.

# Climate Change

## **Atmospheric Phenomenon:**

Hurricanes: “High atmospheric and ocean surface temperatures are core factors for the increased development of category 4 and 5 hurricanes.”



TURKS AND  
CAICOS

Hurricane  
Maria  
2017

What Happened?

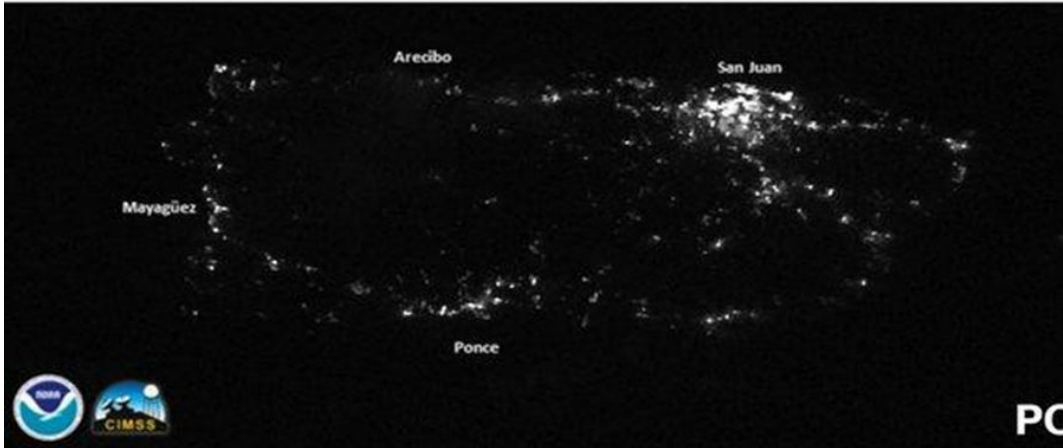
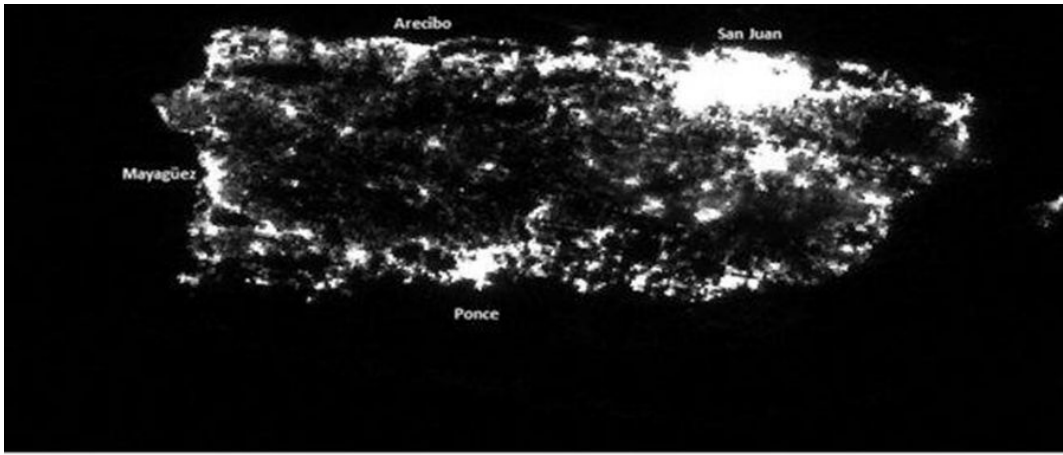
HAITI

DOMINICAN  
REPUBLIC

PUERTO  
RICO







**“Until September 26, 95% of the island had no electricity, no phone, cellular or internet service and less than half of the population had running water.”**

**← Comparison of the electric system of Puerto Rico before and after Hurricane Maria. Images taken by NASA from the International Space Station (ISS).**



## Metaregistrar EPP documentation

### PHP EPP client

This code will provide you with a fully functional EPP client to connect to the Metaregistrar EPP Service.

All code is organized in objects, so connecting to a new registry is just a matter of object re-use and extension.

Example scripts in the main directory:

```
checkdomain.php      - check one domain name
timecheckdomain.php - check multiple domain names and check how fast the registry is
registerdomain.php   - register a domain name
changepassword.php   - change EPP password
infodomain.php       - get information on a domain name
updatepassword.php   - update a domain name with new info
createcontact.php    - create a contact object
updatecontact.php    - update contact details of a created contact object
registerdomain.php   - register a domain name in general availability phase
signdomain.php       - DDoS sign a domain name
poll.php             - list registry poll messages and confirm a message
```

### How to use this client

- Check out the latest version from github
- Use the Examples/checkdomain.php and create a connection to your favorite registry (for example `eppConnection->create('settingsfile')`)
- Create a settings.ini in with the following contents:

```
interface MetaregEppConnection
hostname:ssl://epp1ext1.metaregistrar.com
port:443
```

### Table of contents

- Home
- Changelog
- API Specification
  - EPP RFC
  - EPP Extensions
  - Metaregistrar Epp Extensions
  - RFC Exceptions
- php-epp-client
- EPP connections
- Transaction IDs
- Domain functions
  - Domain
  - Host
  - Contact
  - Email resend
- Other products
  - DNS Services
  - SSL Certificates
- Basic functions
  - Login
  - Logout
  - Poll
  - Poll example messages
  - Keepalive



How did PRTL D continue to be Operational During and After Hurricane María?

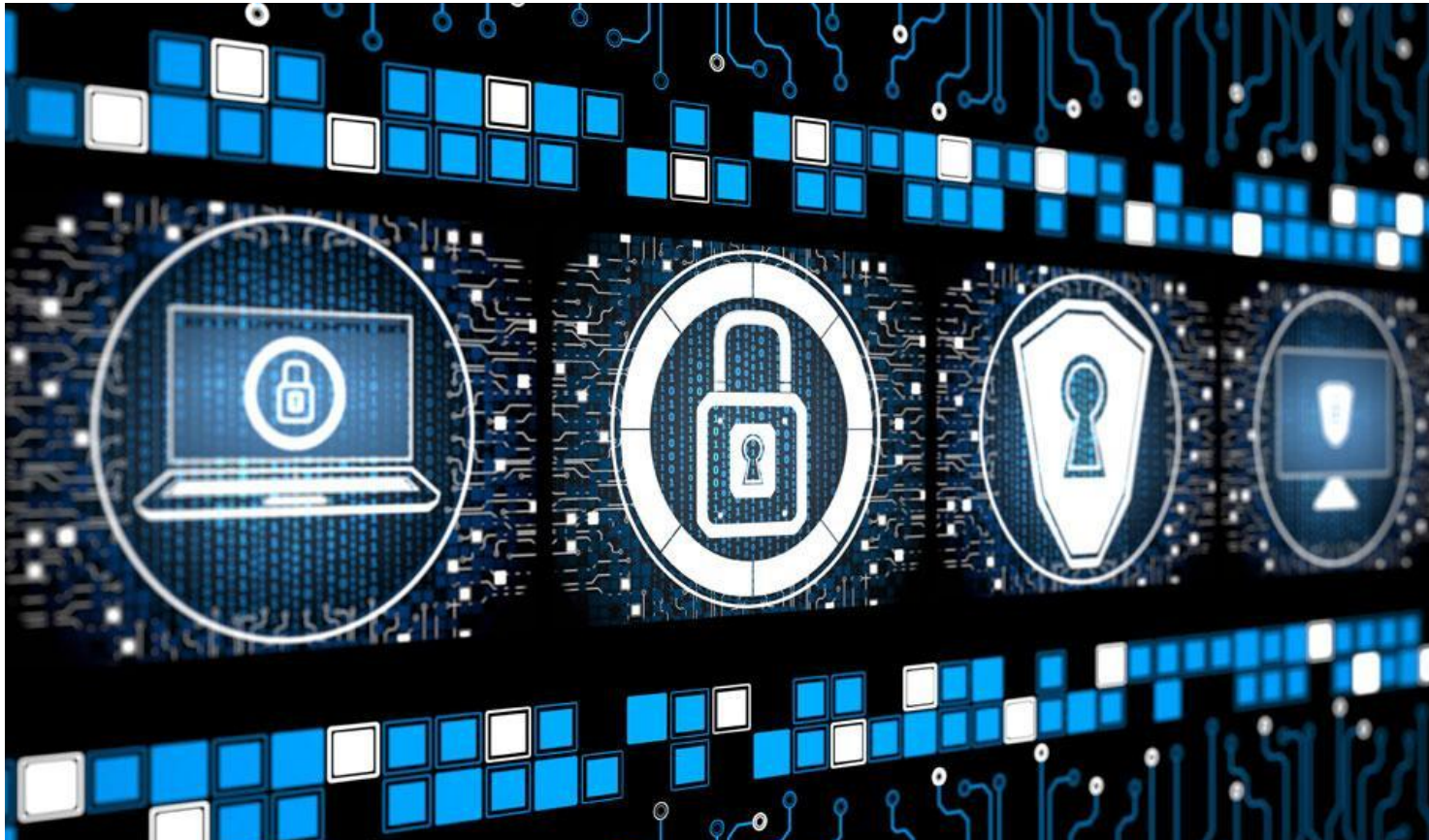
# Colocations & Any Cast



**AT&T**

DNS redundant at a global  
and local level.

**We NEVER lost our DNS!**



## Protecting Customers Cyber Real Estate

The statistics of how many domains we renewed were approximately 626 domains. We had first and second level domains (.pr, .com.pr, isla.pr, org.pr, etc.) There were no renewal fees, and the date was extended to Feb 1st.



## Next Steps...

It is important that registry operators are aware that their users could be uncommunicated during and after the occurrence of disasters. Consequently, new policies should be instituted to ensure the protection of their cyber real estate.



# ccTLD's Diversity



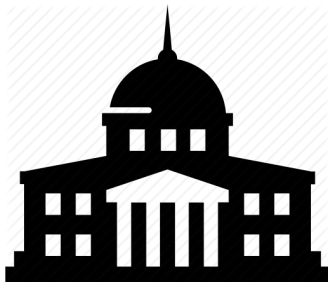
Academical Institutions



Steering Committee



Private Sector



Government

There is no silver bullet to mitigate the risks that ccTLD's face during a Natural Disaster.

A diversity of ccTLD's exists based on how they are conformed; for example, ccTLD's that are associated with:



# Tu.pr

**A local initiative to promote .pr  
domain name registrations**

¡CONSIGUE TU DOMINIO AHORA DESDE \$29.99!\*

**¡Exclusivo para Puerto Rico!**  
Registra tu **.pr** e identificate con Puerto Rico

.pr Registrar exclusive for local  
companies and individuals

<https://tu.pr/>

# What's Under the Hood?

TU.PR uses  
Metaregistrar's PHP EPP client.

DNSSEC support  
Well documented  
Open source

<https://www.metaregistrar.com/docs/php-epp-client.html>



Metaregistrar EPP documentation

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modifydomain.php    - update a domain name with new info
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updatecontact.php   - update contact details of a created contact object
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signdomain.php      - DNSSEC sign a domain name
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port=7088
```

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  - Login
  - Logout
  - Poll
  - Poll example messages
  - Keepalive

## Competitive pricing

.pr

\$99.99

.com.pr

\$29.99

.org.pr

\$29.99

.net.pr

\$29.99

.info.pr

\$29.99

.pro.pr

\$29.99

.biz.pr

\$29.99

## Competitive pricing

.gov.pr

Free

.edu.pr

Free

.ac.pr

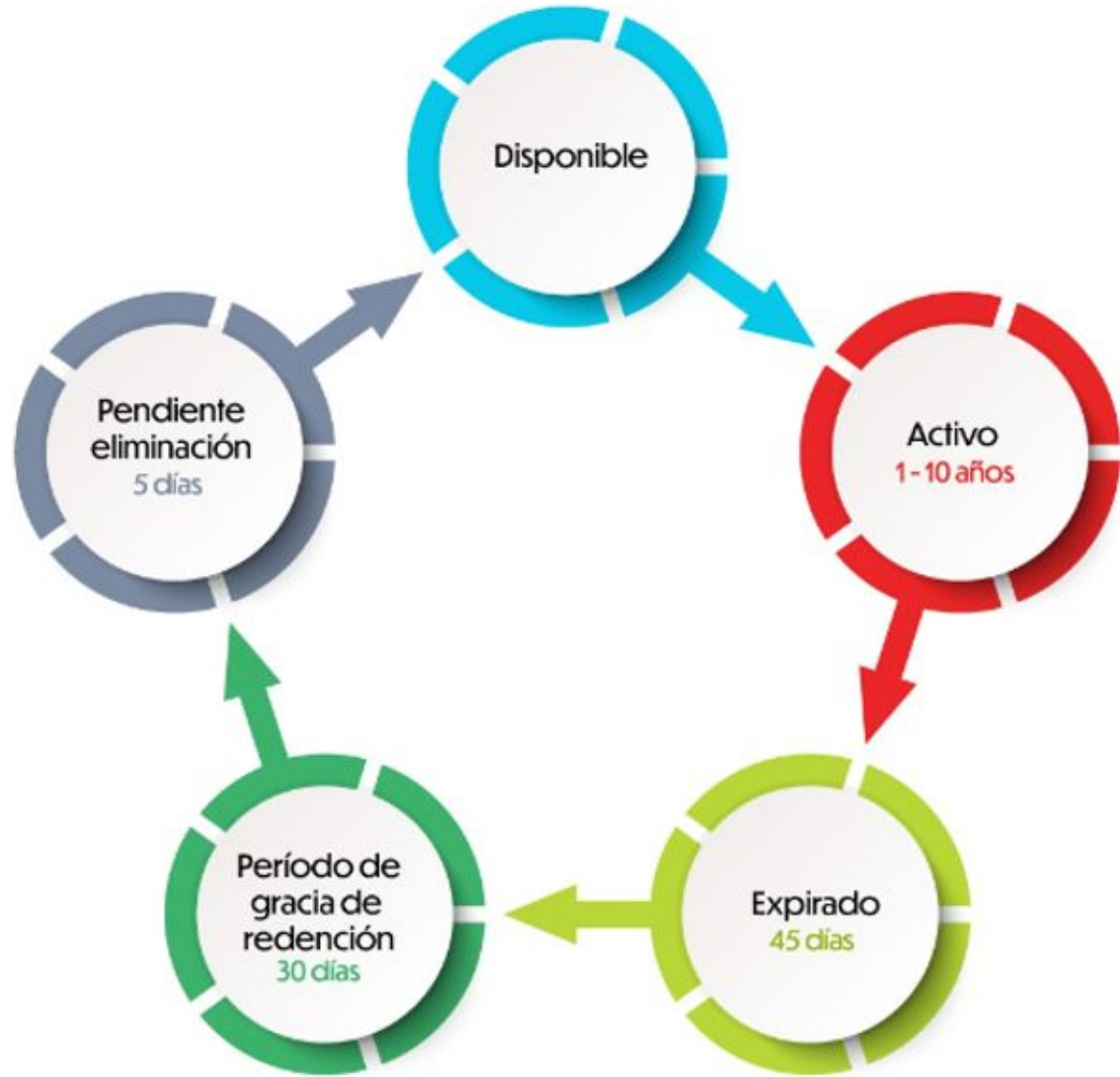
Free

.prof.pr

Free

.est.pr

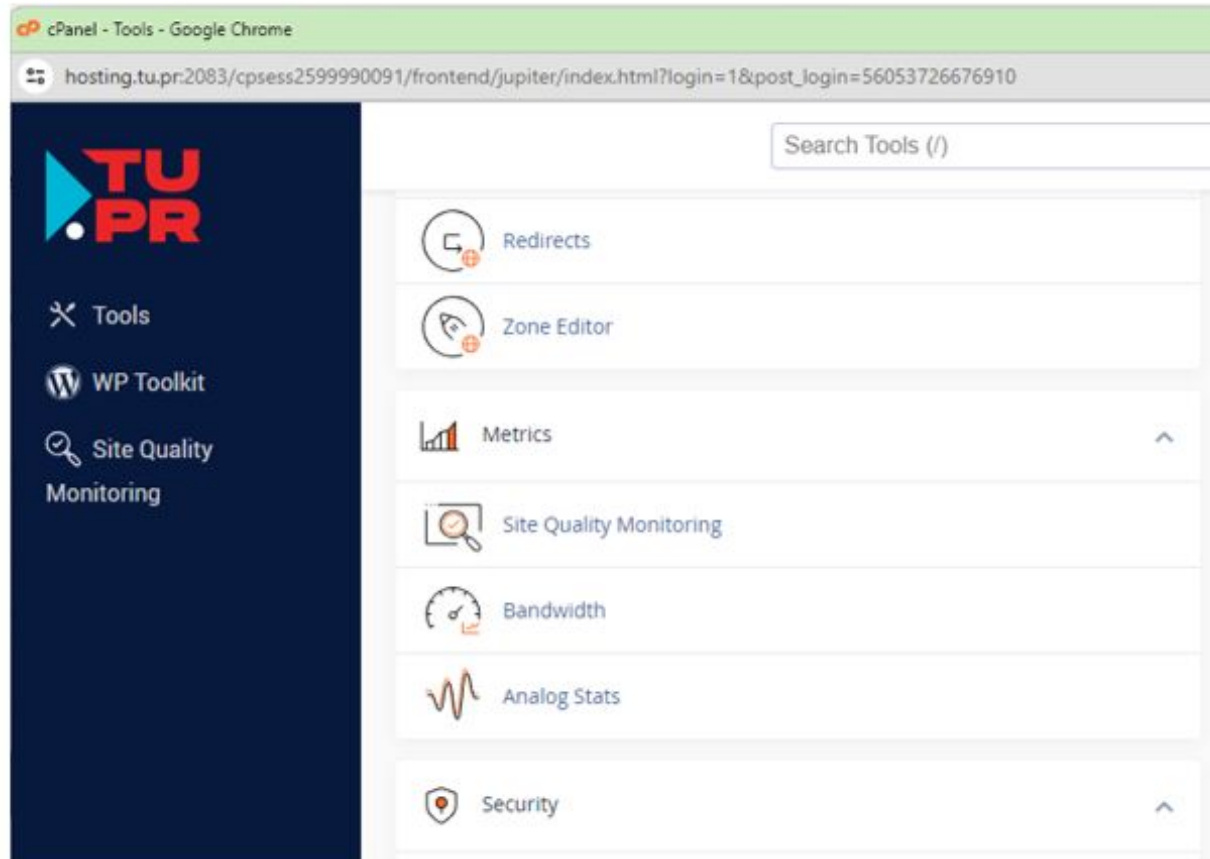
Free



# Customer Oriented

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The registrant is frequently reminded of the Domain Lifecycle



# Free cPanel

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Included with every domain name registration:

- Domain Forwarding
- DNS Zone Editor
- Email Accounts



# Residency Verification

You have 3 days to upload proof of residency after domain registration.

Acceptable documents:

- Utility Bill
- Merchant registration

## Validación de residencia

SIN VERIFICAR

¿Cómo funciona la validación?

Para validar su cuenta, debe proveer un documento que confirme su residencia y/o negocio en Puerto Rico. Nos reservamos el derecho a solicitar información adicional de así necesitarlo.

### Documentos válidos

- Factura de agua, luz y/o teléfono
- Certificado de Registro de Comerciante

Selecciona un archivo para someter como comprobante de tu residencia Puerto Rico. (PDF, JPG, PNG)

 Seleccionar archivo

Subir archivo

Continuar y validar después

## TU.PR Search Bar

Last updated: 2024-19-01

With the goal of encouraging the local community of Puerto Rico to establish .pr as it's go-to Internet identity, the local registrar TU.PR has created the Search Bar program. The Search Bar program was designed specifically to promote .pr in diverse business channels in order to expand it's reachability across the island. Furthermore, every organization that enrolls in the Search Bar program will receive an economic compensation for every .pr domain name registered through their Search Bar.

### How It works, It's Easy:



#### Enroll

Enroll in the program.  
Click here.



#### Integrate

Integrate the Search  
Bar on your website.



#### Earn

Start earning  
revenue!



.pr



# Referral Program

Integrate the TU.PR  
Search Bar on your  
website and earn passive  
revenue!

<https://wiki.tu.pr>

# Community Engagement

Promoting the use of Internet Technologies in Academia





Registra hoy tu nombre de dominio **pr**  
¡Aquí está el nombre que buscas!  
Incentivos para:  
- set-ups  
- resas  
- s gratuitos para:  
- as  
- ros  
- antes  
- asios  
- sias  
- lon

**POPULAR INSURANCE**  
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**Science Live!**  
Planeta Digital  
Cáncer Ambientales

**LORSHEIM**

**ECONOMÍA**  
Crecimiento Sostenible

**ECONOMÍA**  
Crecimiento Sostenible  
**POSIBLE**

UHS STEM CENTER



TECNOLOGIA  
INGENIERIA  
CIENCIA



Tu identidad



www.domains.pr

Plan de estudios  
Plan de estudios  
Plan de estudios

opr



ECOEXploratorio

ECOEXploratorio

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**PR** TU IDENTIDAD EN INTERNET



**Thank you for your kind  
attention!  
Let us continue the discussion**

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