

# **ETSI NGN@Home and Smart House**

## **NEM meeting**

**Nice December 3, 2004**

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# What is a Next Generation Network?

**NGN means different to different parts of the Industry...**

**So which definition is correct?**

**“A public packet based communication network integrating voice, data and enhanced multimedia services with the following characteristics:**

- ◆ **Layered instead of monolithic architecture**
- ◆ **Open standard interfaces between the layers and all other networks**
- ◆ **Seamless control of multiple transport technologies**
- ◆ **Use of standards based components ”**

**NGN motivating point:**

***It enables New Services and therefore New Revenues...***

# Drivers of Broadband Growth and Impacts

## Drivers

- Demand for high-speed for streaming video and audio
- Home networking: Multiple PC's and Internet appliance in the home
- Personalization: Services customized to the individual
- Shift from PC world to network devices world
- Backbone infrastructure to provide more capacity and QoS

## Impact

- More Bandwidth consumed per home and office
- More Capacity needed from infrastructure
- QoS needed end-to-end
- Home Networking standards to mature and co-exist
- Voice/Video/Audio distributed in-home and office
- Internet Appliances, End Points & Services through the home network
- Security needed to protect consumers, provider & content

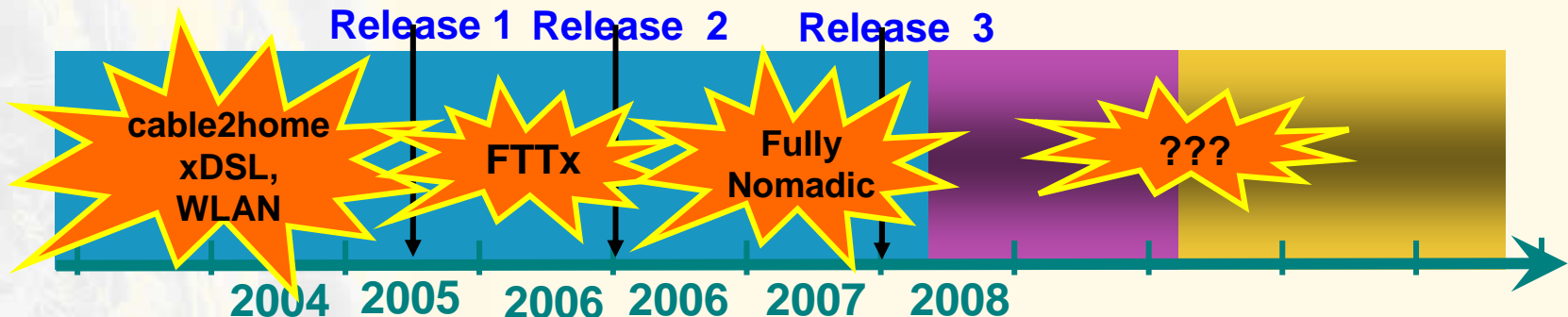
# ETSI -The NGN goals

The ETSI NGN goal is to provide Standards that will enable:

- **A multi-service multi-protocol, multi-access, IP based network that is secure, reliable and trusted**
  - **Multi-services**: delivered by a common QoS enabled core network
  - **Multi-access**: diverse access networks; fixed and mobile terminals
  - **Not one network**, but different networks that seamlessly interoperate
- **An enabler for Service Providers to offer**
  - real-time and non real-time, communication services
  - between peers, or in a client-server configuration
- **Mobility / Nomadicity**
  - for both users and devices
  - intra and inter-Network Domains, between Fixed and Mobile networks
- **Interactive “My communications services”**
  - anywhere, any terminal, anytime

# ETSI NGN Roadmap

## Towards a converged of a Wireline and Wireless NGN



### ❑ Release 1 brings Multimedia services

- Intra-domain nomadicity/user-controlled roaming
- Based on use of Access network Attachment Subsystem

### ❑ Release 2 dynamically optimizing resources usage

- According to user subscription profile and service use

### ❑ Release 3 introduce a full Nomadicity

- Inter-network domain nomadicity/user-controlled roaming
- Higher bandwidth access(VDSL, Wi-max ...)

# ETSI - Access activities

## □ NGN@Home

- Launched in August 2002 with the focus on Home Networks
- To standardise the inter-work of all home technologies including Radio and fixed wireless links (TM4, BRAN)
- To facilitate common use of features in different systems

## □ xDSL

- Covers the application of all DSL technologies in Europe
- Covers coexistence with legacy systems and infrastructures
- Focus on rational frequency management in the local loop

## □ Cable (Telecom over CATV infrastructures)

- Covers the application of Cable technologies in Europe
- Covers lower (Euro-DOCSIS) and higher layers (Euro-IPCablecom)
- Considers the impact of convergence Telecom-Broadcast

## □ PLT/ PLC

- Covers all aspects of Power Line in Europe
- Takes special care on EMC issues
- Supported by “white goods industry” aiming Home automation

# Home Networking

The objective of the project is to define and demonstrate an open network architecture enabling the provision of services to the users in its home, and in nomadic situation.

**1. Build a multi-services home network** based on a Residential Gateway (RG) that acts as a **service platform** for the end user. The RG embeds the Home Agent (HA) that allows remote management of the home network by the home network service operator.

**2. Build a powerful and networked management tool.** This tool is a software platform located for example in an ISP or ASP premises. This platform inter-works with the HAN.

**3. Offer Remote Access (for mobility and also a visiting connection) in a secure way** to the home resources via mobile phones, PDAs, laptop or workstations. This methodology will be applied for the low bit rate as well as for the high bit rate applications

# Home Environment Common Items

## ❑ **Backwards compatibility with legacy systems**

- **Backwards compatibility**, support of legacy terminals features [TR 101 973 series]
- **Maximise** the usage of harmonised or converging solutions, e.g. interface offered for POTS [ES 201 970]

## ❑ **Future oriented convergence with NGNs' evolution**

- **Improve** inter-working among base technologies
- **Facilitate** differentiation & universality of services & contents

## ❑ **Consider horizontal aspects**

- **Regulatory framework** on services & networks, terminals etc
- **Interoperability** among different solutions
- **QoS** [Quality of Service] for Voice [EG 201 050]
- **Support** for emergency situations - EMTEL
- **Security** / Data Protection, Lawful Interception
- **EMC, Safety**



# Home Residential Gateway Architecture

**RG Coordinates shared access to the Internet for all it's End Devices**

## Connection Module

xDSL, Cable, BWA, ETTH, FTTH...

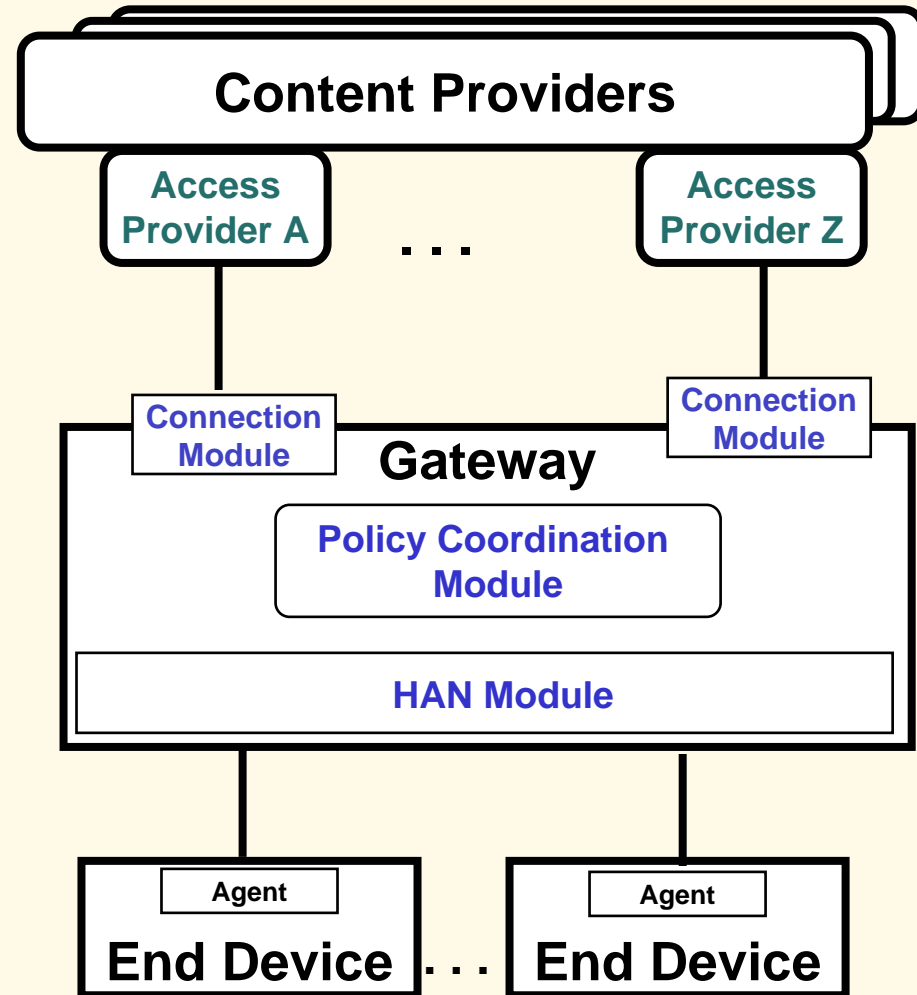
## Policy Coordination Module

Coordinates changes amongst the other modules, makes appropriate adjustments to other Modules as needed. It handles:

- IP Routing
- Digital Rights
- Multicast optimization
- NAT
- QoS
- Security

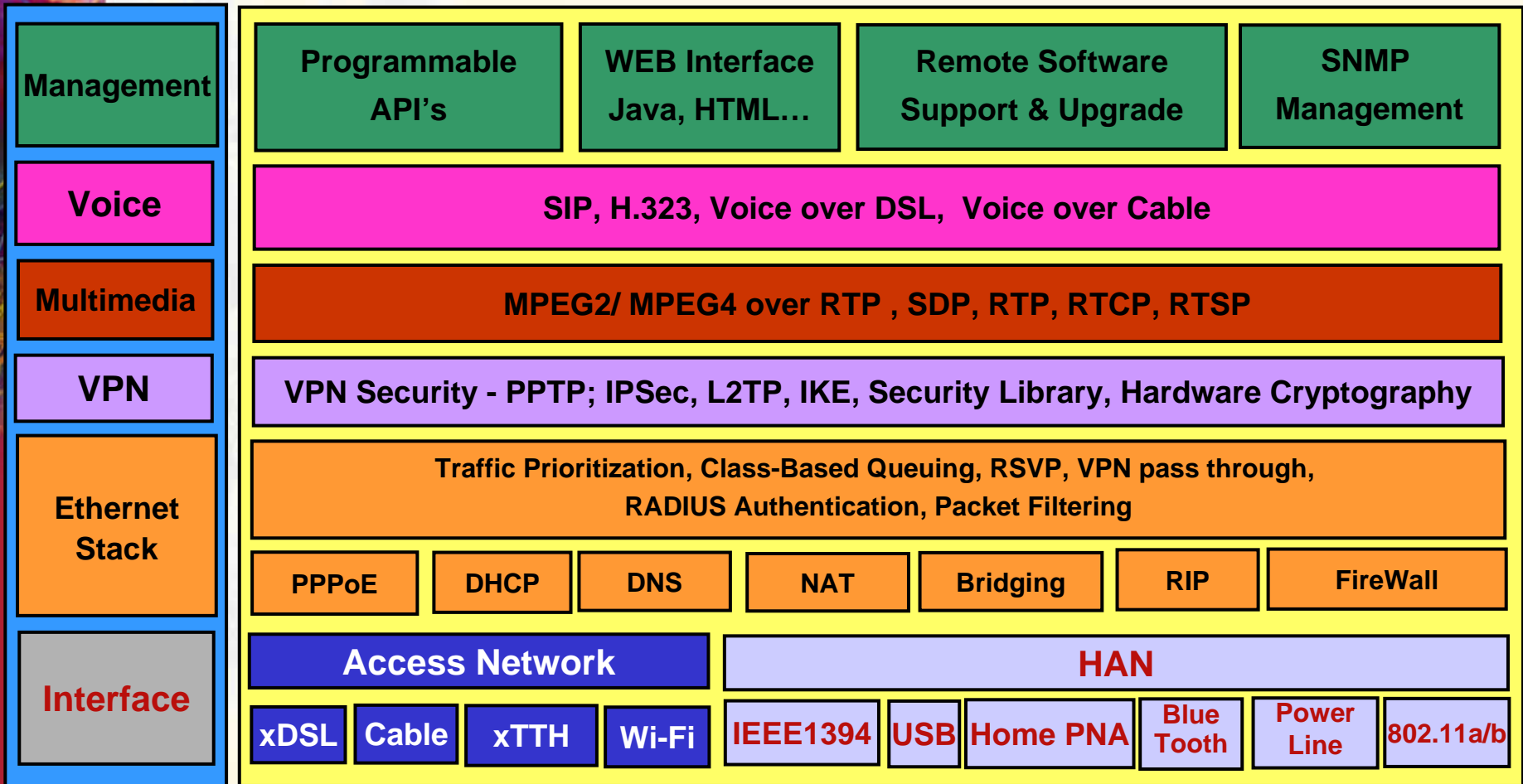
## HAN Module

1. Might be separate hardware (Hub, bridge, switch, access point)
2. Ties the various home networking media together (Ethernet, IEEE 1394, 802.11, HPNA, PLC, Bluetooth, USB, Cable...)
3. Notifies the Policy Coordination Module of pertinent changes.



# Home Residential Gateway Stack

(example)





# In-Home Solution

## **Home Related Services:**

Home Appliance Control & Automation (Energy Savings, Lighting, Shutters, Pool control), Remote Management, Entertainment, Healthcare, E-commerce, Security Communications, Internet, Customised solutions

## **Connected office:**

VPN, Video Conferencing, VoIP

## **Remote Control:**

Remote Managing of Home appliances, Connecting to the home network

## **Content:**

Music, Video Games, Banking, Billing, Info-channel, TV, Chatting, Video telephony, Video Conferencing, Information Storage, Internet Radio, Messaging....

## **Mobility:**

Full collection of music and videos in car, Sync over WLAN, 3G or while parked in your garage.

## **Emergency:**

**Emergency calls from within house/home or even a car, rerouted through Home RG to appropriate call center.**

# Smart House Initiative

- ❑ **Smart House sets the standards for the home of the future in Europe**
- ❑ **SMH Phase II**
  - **A Code of Practice (CoP) for the Smart House**
  - **Supported by EU Commission,**
  - **Reporting to ICTSB (ICTSB/SHSSWG)**
  - **Input from all the Stakeholders**
  - **Utilizing all the standards and practical output from EU FP6 Projects**
- ❑ **Managed by CENELEC under TC 205 Ad-Hoc WG16**

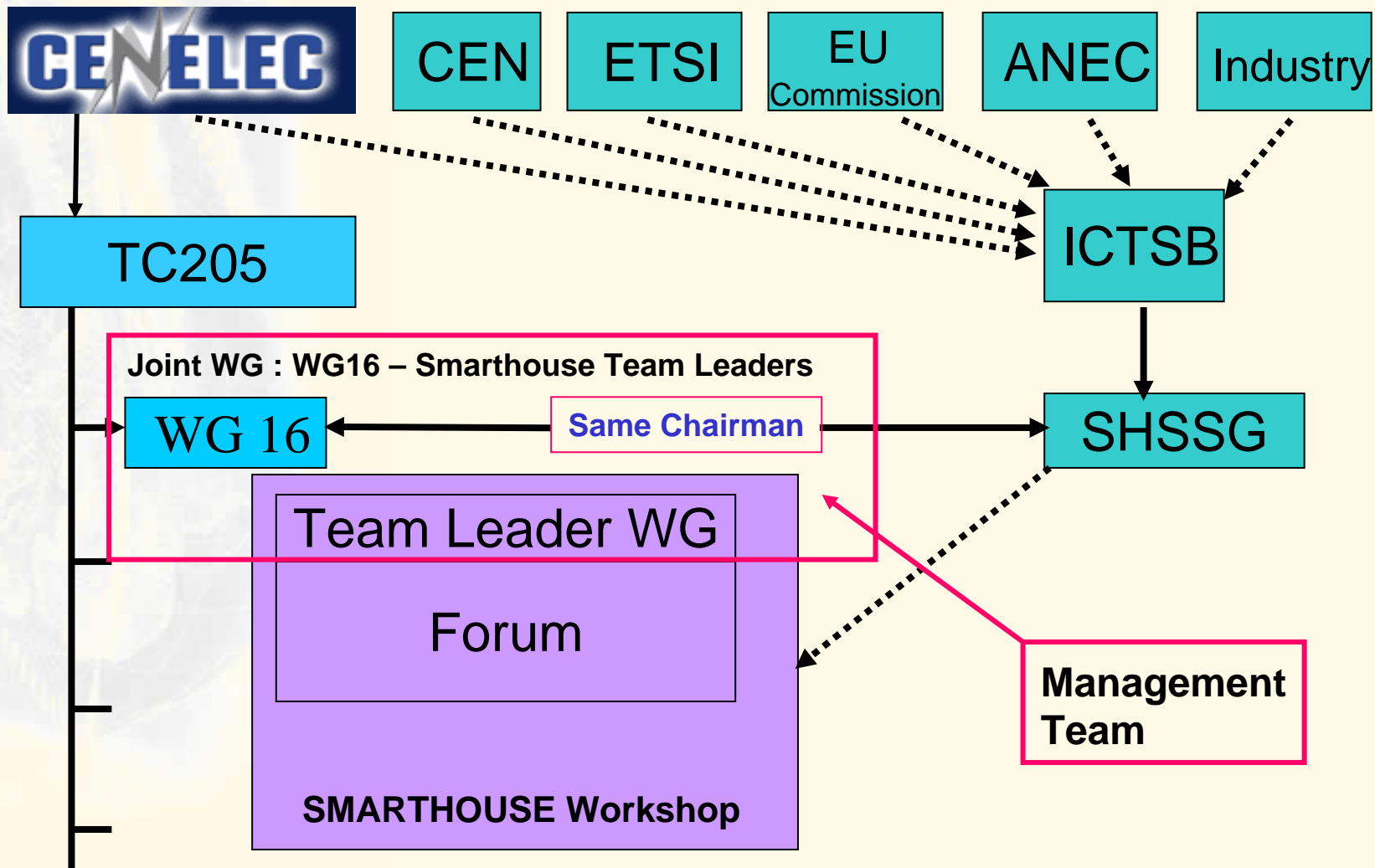
# SmartHouse Code of Practice

- ❑ **The Smart House CoP is to get together the Industry with the common and coherent goal**
- ❑ **Make the House of the Future a reality of today**
- ❑ **It is a CONSENSUS BUILDING initiative**
- ❑ **With the support of key players:**
  - **The Consumer (ANEC)**
  - **The Industry (DHWG, OSGi, KONNEX, CECED, Philips, Siemens, Thomson, Telecom operators, Energy providers, Installers,etc...)**
  - **The European Commission: Standardization (DG ENTR) & Research (DG INFSO)**

# What will Code of Practice achieve?

- It will reference **all existing standards related to Smart House**
- It will report **the progress of ongoing standards in this area**
- It will identify **the gaps and the need for standardization**
- It will notify **eventual redundant standards and provide recommendations**
- Will provide **recommendations for interoperability**
- Will provide **recommendations based on the existing solutions**
- It will provide **a Code of Practice for the installers**
- The work started **in December 2003**
- Will be achieved **by September 2005 (20 months)**

# SMARTHOUSE Organisation



# Scope - Timeframe

- ❑ **The Contract between the EU Commission and CENELEC sets a requirement for deliverables, milestones and performance indicators.**
- ❑ **Major deliverables milestone :**
  1. Roadmap for the work 19<sup>th</sup> February 2004
  2. Interim Report 19<sup>th</sup> September 2004
  3. Final Report / Code of Practice 19<sup>th</sup> August 2005
- ❑ **SmartHouse Forum:**
  - on 11 May 2004,
  - in 2005 (probably in April)
- ❑ **Work is intended to achieve a deliverable that will help the marketplace accelerate its growth in the area of SMARTHOUSEs. It also implies:**
  - Regular maintenance and upgrading of the CoP on a yearly basis in the future.

# Which standards are addressed ?

- ❑ **The CoP is aimed at achieving the objectives of e-Europe 2005, when every citizen will have a range of Broadband Services.**
- ❑ **For using new services a citizen will need equipment, systems and networks in their “SmartHouses” that are:**
  - **Easy to use**, interoperable, providing intuitive interaction.
  - **Secure**, safe and conforming to open and transparent standards.
  - **Compatible** with public rules, since a significant portion of the “SmartHouses” of the future will be equipped with the help from public funds, e.g. social housing.
  - **Intuitive**, since many people are disadvantaged by disability, poor health, poor education or age.
- ❑ **Similar requirements apply for the services and applications provided by Service Providers.**

# Conclusions

## Standardisation activities for management in Next Generation Home Networking:

- ❑ **Ensure a global user approach, independent of a specific access technology**
- ❑ **Define a reference architecture and network functions required to support home and/or nomadic users**
- ❑ **Define required interfaces for these functions in the control layer for the terminals and the applications**

## **Contact Details:**

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