# Smart electricity metering with LoRaWAN® - ready to scale in India

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## Session : SMART METERING – DISCOMs, AMISPs, OEMs, SIs
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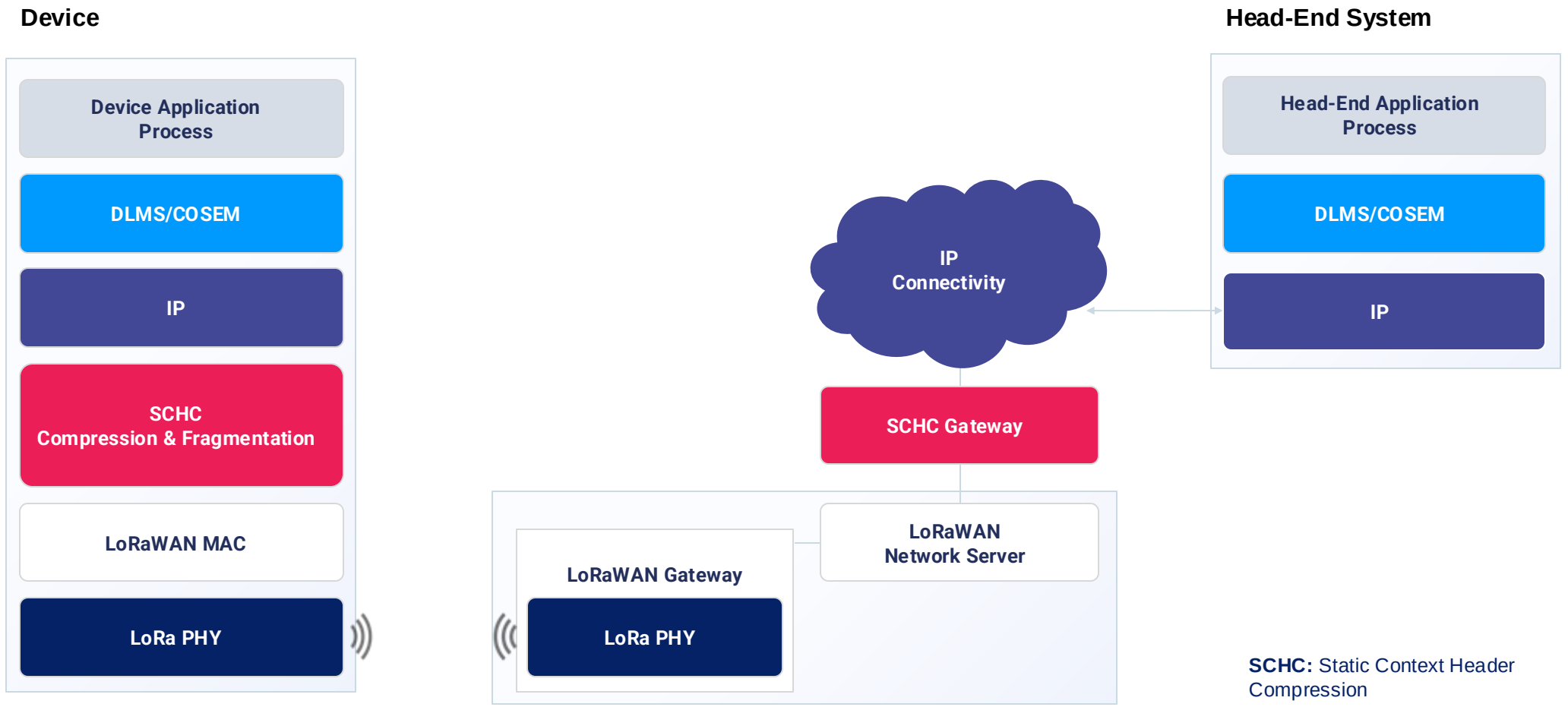
# The LoRa Alliance®

- Global open non-profit alliance launched in 2015
- Develops and maintains LoRaWAN® standards
  - Recognized by ITU as an international standard
- Educates the market about LoRaWAN technology, the latest advancements and deployments
- Develops and maintains the LoRa Alliance certification program

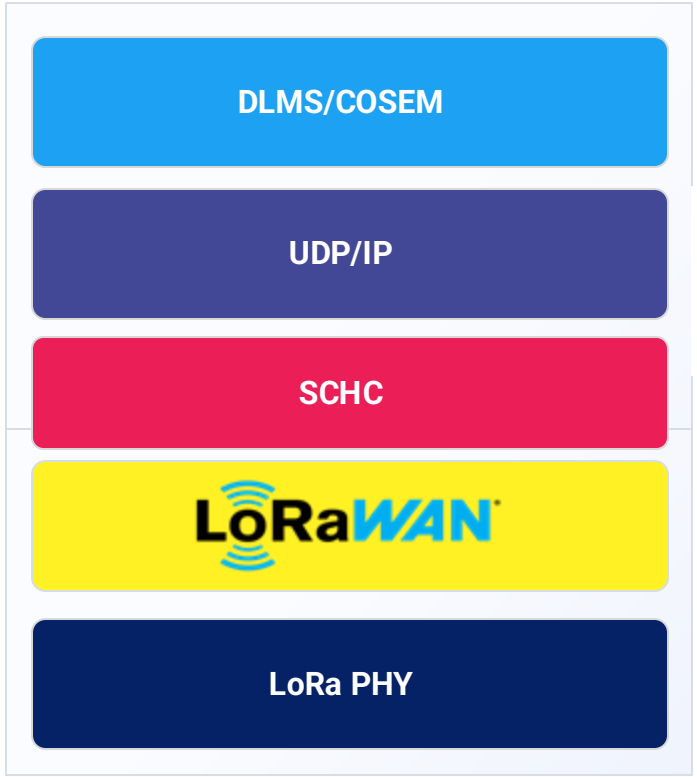
# Architecture model for DLMS over IPv6 over SCHC over LoRaWAN®




**SCHC:** Static Context Header Compression

IETF RFC 9011 and 8724

# Communication stack for enabling DLMS profile over LoRaWAN®




DLMS

**Blue Book Ed.14** includes
DLMS Profile for LoRaWAN standardized by IEC

IETF

RFC 8724: **SCHC Generic Framework**

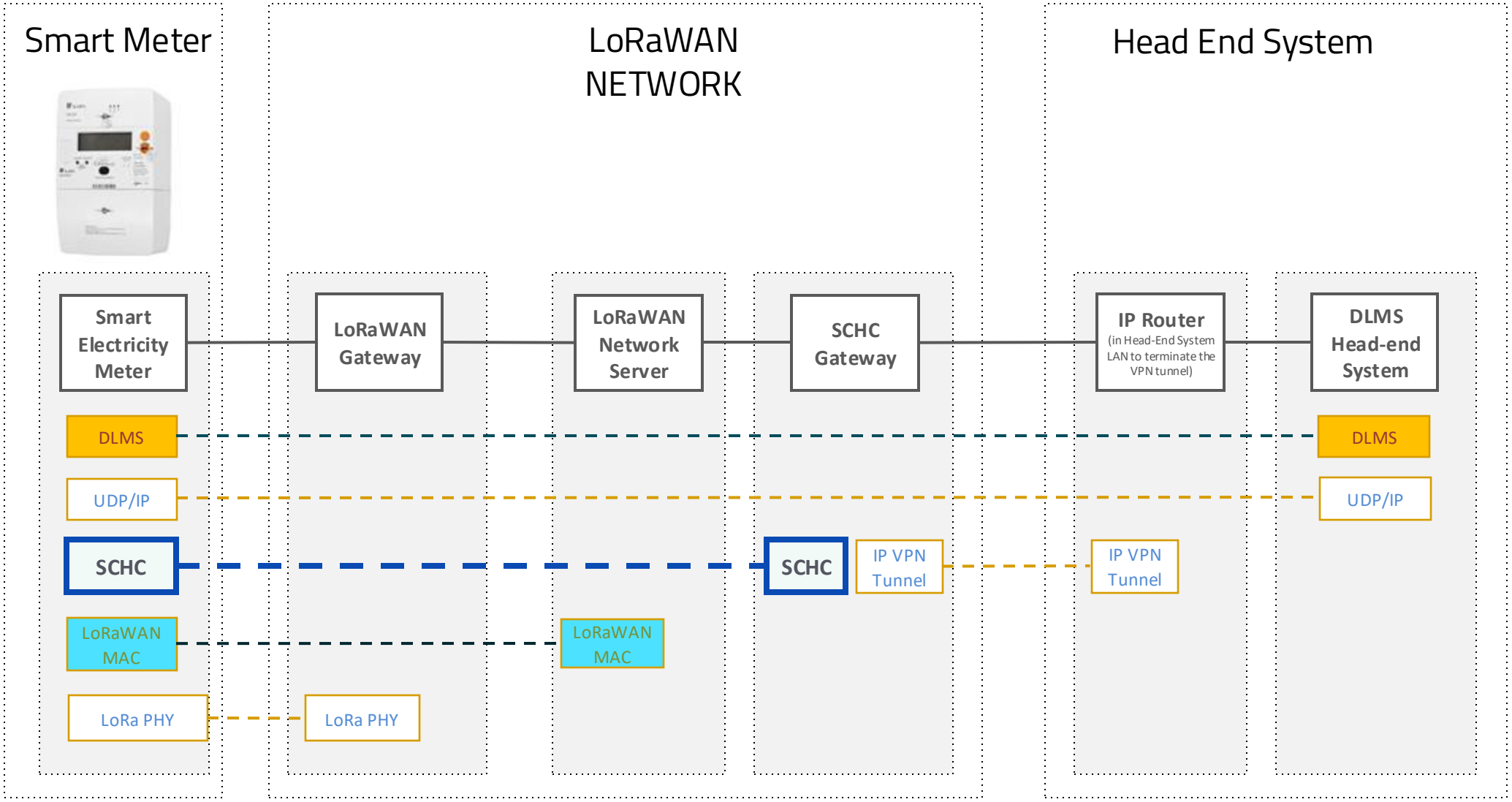
RFC 9011: **SCHC over LoRaWAN**

LoRa Alliance

TS010-1.0.0: **LoRaWAN IPv6 Adaptation Layer**

For public information:
FAQ about IPv6 Adaptation layer with SCHC
Technical webinar about IPv6 over LoRaWAN

# DLMS over LoRaWAN®



# LoRaWAN® key benefits for smart metering

Open network communication technology

- Appropriate for low power consumption devices => long battery life
- Long range communications
- Automated mechanism to adapt the data rates/TX power to the best radio conditions
- RELAY – feature for Highly scalable deployments

Embedded two-layer security based on AES 128-bit encryption

Three possible communication classes allowing trade-off between communications latency and power consumption

Large flexibility in the network model between public, private or hybrid networks

Interoperability of devices ensured by unique certification defined by the LoRa Alliance®

Large availability of different and certified LoRaWAN® devices

# LoRaWAN® Smart Water Management Success

enthutech®

## Bangalore Airport City Limited's Transformation (BACL)

### Challenge

- Manual water monitoring led to inefficiencies & wastage.

### Solution

- Smart water meters with LoRaWAN connectivity
- Real-time monitoring & remote control
- Automated alerts for leaks & anomalies

### Impact

- 10% reduction in water wastage
- Enhanced operational efficiency
- Sustainable water management

# LoRaWAN® Smart Energy Success

## Bharatiya Reserve Bank Note Mudran Private Limited's Transformation (BRBNMPL)


### Challenge

- High energy consumption & lack of real-time insights.

### Solution

- Smart energy meters with remote monitoring
- Real-time analytics for energy optimization
- Predictive alerts to reduce wastage

### Impact

- Improved energy efficiency
- Reduced operational costs
- Sustainable energy management

# LoRaWAN® Smart Resource Management Success

## Palm Meadows Gated Community's Sustainable Living, Bangalore

### Challenge

- Inefficient resource utilization in a large community.

### Solution

- IoT-enabled water & energy monitoring
- Smart automation for optimized usage
- Data-driven decision-making

### Impact

- Reduced wastage of water & power
- Cost-effective resource management
- Sustainable & eco-friendly community

# LoRaWAN® Smart Energy Management Success

## Wheels India's Industrial Optimization


### Challenge

- High energy consumption & unmonitored industrial usage.

### Solution

- Smart energy meters for real-time tracking
- AI-powered analytics for efficiency insights
- Automated controls to prevent excess consumption

### Impact

- Optimized energy consumption
- Reduced downtime & maintenance costs
- Enhanced sustainability goals

# LoRaWAN® Smart Energy Optimization Success

## Zomato Hyperpure's Sustainable Warehousing


### Challenge

- High energy usage in cold storage & warehouse operations.

### Solution

- IoT-powered energy monitoring system
- Smart automation for optimized cooling
- Predictive analytics to reduce excess consumption

### Impact

- Optimized energy consumption
- Reduced downtime & maintenance costs
- Enhanced sustainability goals

# LoRa Alliance® Ecosystem — present in ISUW exhibition

SEMTECH

enthutech®

TATA COMMUNICATIONS

kerlink
communication is everything

ripple™

Actility

Chipsets | Modules | Devices | Gateways | Servers | Network Operators | Cloud Platforms/ Data Management | Solutions | System Integrators

# Reference links

DLMS profile for LoRaWAN is IEC standard (**IEC 62056-8-12)** Electricity metering data exchange – The DLMS®/COSEM suite – Part 8-12: Communication profile for Low-Power Wide Area Networks (LPWANs) and in particular LoRaWAN®
https://webstore.iec.ch/en/publication/71751

Technical webinar explaining how SCHC works and how it can compress & fragment IPv6 and UDP protocols:
https://resources.lora-alliance.org/youtube-all-videos-2/augmenting-lorawan-devices-with-internet-protocol-support

**Technical specifications from the LoRa Alliance:**

- TS010 LoRaWAN® IPv6 Adaptation layer specifications:
  https://resources.lora-alliance.org/document/ts010-1-0-0-ipv6-adaptation-layer
- TR006 LoRaWAN® DLMS® End-device Monitoring Guidelines:
  https://lora-alliance.org/resource_hub/tr006-lorawan-dlms-end-device-monitoring-guidelines/
- TR011 requirements for the testbed used for DLMS certification:
  https://resources.lora-alliance.org/document/tr011-1-0-0-architecture-and-requirements-of-lorawan-testbed-with-ipv6-adaptation-for-dlms-ua

About SCHC:

- FAQ https://resources.lora-alliance.org/faq/ipv6-lorawan-adaptation-layer-faq
- Laboratory for SCHC of IMT Atlantique University maintains open software for end device: https://lab-schc.fr/

# Questions

Learn more at: lora-alliance.org

**Simple. Affordable. Transformative.**

LoRaWAN®

LoRa Alliance®