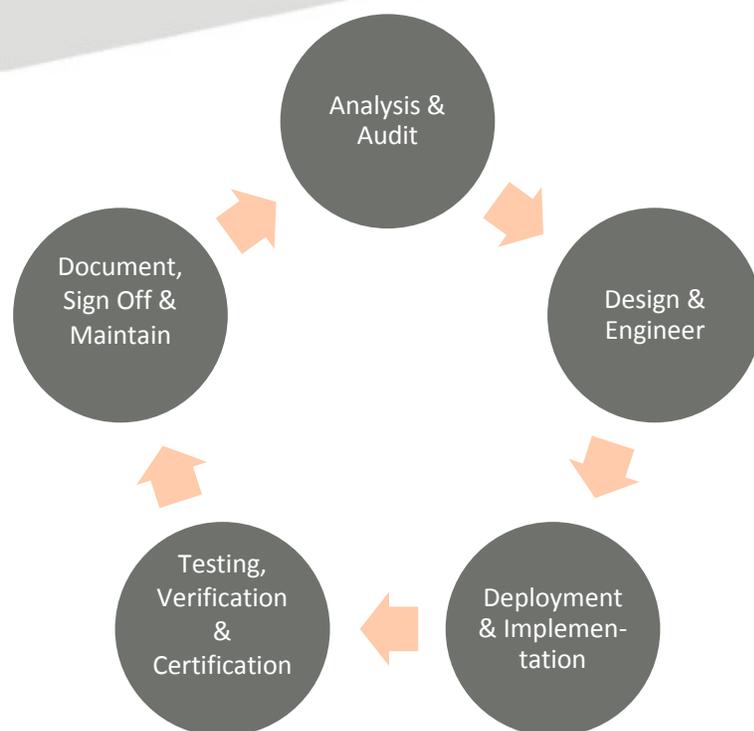**ARRIS**

DOCSIS 3.1 HFC-Related Services

Global Services

Stay focused on business as usual while ARRIS develops and executes an HFC plant audit and a detailed plan for implementing DOCSIS 3.1 in the HFC network.

Analysis & Audit

Design & Engineer

Document, Sign Off & Maintain

Deployment & Implementation

Testing, Verification & Certification

SERVICE OVERVIEW:

A DOCSIS 3.1 network offers significant increases in subscriber bandwidth and enhanced operations. Never before has a standard come with so many new features and brought so many changes to broadband delivery. These include a new frequency multiplexing scheme, new methods of error correction, expanded frequency ranges and, of course, new CPE. The path to realizing the full benefits of DOCSIS 3.1 will require significant change throughout operators' networks: the Wide Area Network (Core and Backhaul), Distribution Hub or Headend, Operations Support Systems, Physical Layer and CPE devices. ARRIS recommends a multi-phased approach that begins with analysis and audit of the existing network. ARRIS's expertise builds on decades of experience with cable network upgrades and consolidation. With ARRIS as a partner, operators can map out and execute a logical plan to design, deploy, verify and document their DOCSIS 3.1 network and get ready for the next wave of subscriber demands and new service offerings.

The services described in this data sheet focus only on the capability of the HFC network to support DOCSIS 3.1.

MULTI-PHASED APPROACH

The conversation around DOCSIS 3.1 has quickly moved from "What is it all about?" to "How do I make sure we're ready?" And just as the benefits of DOCSIS 3.1 are many, so too are the steps it takes to prepare. It is critical to take a step-by-step approach, to develop and execute a plan that ensures service continuity, maximizes bandwidth gains, and minimizes costs.

STEP 1: ANALYSIS AND AUDIT

- Establish current system parameters through targeted review of the existing network
- Hub or Headend –Inside Plant design and optimization
- Physical Layer (TX/RX, HFC) – bandwidth, performance, links, amp spacing, tap RF levels, cable,

STEP 2: DESIGN AND ENGINEER

- Network planning and system migration
- Pre-engineering sample designs
- Drop-in design - module swaps, relocation engineering
- Capacity engineering/Managing service groups – de-clustering, node segmentation, wavelength planning

STEP 3: DEPLOYMENT

- Construction Management – hub builds, PODs, rack/stack/wire projects
- Material Staging & Logistics – add efficiency through on-time delivery, loss reduction and decommissioning
- Installation Management – available for all hardware required for D3.x upgrades. ARRIS skilled technicians install, configure and test.

STEP 4: TESTING AND CERTIFICATION

- Test Device upgrades or replacements
- Functional, compliance and performance testing
- Quality of Service and KPI Reporting

STEP 5: DOCUMENTATION AND SIGN OFF

- ARRIS provides documentation of every process and task with recommendations for improvement.
- Transformation Plan (Phasing, Materials, PM, Build)
- Playbooks (Design, Engineering, Deployment, Certification, Maintenance)

DOCSIS 3.1 HFC RELATED SERVICES

ARRIS Global Services offers a wide range of services that can be provided a la carte or as part of a complete transition program, including creating a strategy for headend evolution, validating that RF performance is within an acceptable and expected range.

SYSTEM READINESS AUDIT

ARRIS provides an audit and review of the existing DOCSIS network and technical operations, allowing you to concentrate your resource efforts and validate your network readiness (and people) in preparation for DOCSIS 3.1. The audit can be system-wide or targeted to a sample area.

TECHNICAL CONSULTING

Analyze RF Network, practices and personnel to develop a strategy to smoothly transition to 3.1. ARRIS RF and Data Engineers have years of experience with HFC operators.

HEADEND AUDIT

Make sure the headend is ready for 3.1. Manage the alignment of video and high speed data service group sizing. ARRIS Video and DOCSIS experts can create a strategy to properly size the number of service groups, and plan the number of QAMs required for CER deployment.

OUTSIDE PLANT DESIGN

HFC drop-in upgrade design, recalculating forward and return path to support 3.1 operating levels (5-85 or 12-204). Node segmentation and node splitting design.

INSIDE PLANT DESIGN

Leveraging ARRIS's history in designing for and deploying high density solutions, ARRIS can architect solutions to reduce power and cooling needs, and 'wire once' to match new OSP requirements. Modular "POD" solution can be built off site to minimize impact on business as usual.