



feature sheet

FEATURES

- Bonjour gateway
- Bonjour bridging between networks
- Granular control of Apple services
- Intuitive user interface

BENEFITS

- Enables Bonjour services across networks
- Filters multicast traffic from source to destination
- Prevents unnecessary Bonjour advertisements
- Included in ZoneFlex software
- Easy to setup and manage

Feature	Description
Bridging Service	Select service type to bridge between VLANs, other allows entering a DNS-SD service type directly
From VLAN	Select the VLAN to bridge service advertisements from, devices connected to this network advertising the selected service will be available in the 'to' domain
To VLAN	Select the VLAN to bridge services to. Devices connected to this network will see services advertised in their own domain as well as the 'from' domain
Two Way	Devices connected to either network will see services advertised on their own VLAN as well as the other

SmartWay

BEYOND BONJOUR BRIDGING

Bonjour is an Apple network service for zero-configuration (zeroconf) networking over IP. Examples of zeroconf services are AirPlay and AirPrint. With Bonjour, users and applications can locate devices such as printers, services, and other computers running on the same network, a local Virtual Local Area Network (VLAN).

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Bonjour works using a combination of DNS Service Discovery (DNS_SD) and multicast DNS (mDNS). DNS-SD allows for services to be advertised over traditional unicast DNS servers or by mDNS on the local link. mDNS works by sending standard DNS queries and responses to a well know link-local multicast address. A client looking for a Bonjour service will browse by sending multicast queries to discover all instances of a particular service, such as AirPlay. The client will receive a list of services and selects one to connect to. Those Bonjour supported devices, playing the role of mDNS responder, multicast responses to advertise all the services they are offering, such as file sharing, printing, or AppleTV.

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In the current implementation, the Bonjour protocol is limited to the local multicast domain, typically a subnet or a VLAN. This means that devices can only see Bonjour service announcements from other devices in that domain. This works fine for a small office running on a single VLAN but has limitations in larger networks, such as schools that want to share Bonjour services across the campus.

Limitation with networks

For an example, let's use a primary school that is designed with multiple VLANs for teachers, students, and classrooms for devices such as AppleTVs (using AirPlay) and printers (using AirPrint). The design makes sense as it isolates multicast traffic and separates the network for security reasons, e.g. teachers may be required to login via 802.1X, which Apple TV does not support. The problem this creates is that teachers and students will not be able to see the AppleTV since they are all on separate networks.

SmartWay

BEYOND BONJOUR BRIDGING

Real-world problem

Teachers and students require access to these Bonjour services however, schools cannot compromise network performance or wireless security. The Bonjour multicast is limited to a single network and cannot communicate with devices or services across multiple VLANs. So when a teacher using an iPad attempts to connect to an AppleTV, it will not be able to find the device.

Ruckus' Solution: Ruckus SmartWay

Ruckus SmartWay — a “Bonjour Gateway” is an integrated feature of ZoneFlex software (9.7 and above), no additional hardware is required. SmartWay enables Bonjour services such as AirPlay and AirPrint to work across multiple networks while preventing unnecessary multicast traffic. With SmartWay, an organization will have the option to control which services are accessible to which network.

How it works

Ruckus SmartWay will proxy Bonjour service announcements from one network (VLAN) to another. When SmartWay sees the service announcement for the AppleTV by a teacher on separate network, SmartWay will rebroadcast that service announcement. The teacher's iPad on the teacher network will now see the AppleTV on the device network, and can connect.

SmartWay provides granular control of services. When enabled, communication of Bonjour should not flood the entire network with multicast traffic. If it were to do so, the resulting multicast traffic would be significant, and there would be no way to limit what services were available. SmartWay filtering prevents unnecessary multicast traffic by providing control over which Bonjour services are rebroadcast and which networks they are allowed on. Configuration is very easy with a simple click of a button to allow bi-directional Bonjour discovery across network

The example in Figure 1 shows the granular configuration of SmartWay Bonjour services. It provides the ability to customize network access by specific services. In this example both teachers (VLAN 200) and Students (VLAN300) have access to printer services in the classroom network (VLAN100) while blocking the student from seeing the AppleTV in the same classroom network. This type of network access works great in some network, however other deployments may require more localized control, such as by access point or a group of access points.

Fencing provides control of services by single AP or a group of APs. In large network deployments such as schools, a single

VLAN may have hundreds of Bonjour services broadcasting to browsing clients. Fencing will limit the broadcasting traffic to a single AP such as in a classroom or a group of APs such as in an auditorium or a large laboratory that requires sharing of multiple Bonjour services.

FIGURE 1

Teacher and student both have access to printer resources in the classroom network while filtering student traffic from being able to access the AppleTV.

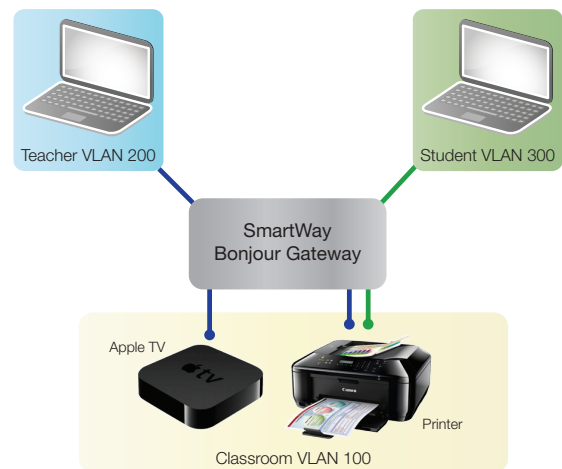


FIGURE 2

SmartWay Bonjour Bridge configuration example

