MikroTiK Routing The World

Routeros 构建高性价比的校园无线网络

Routeros build cost-effective wireless campus network case

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2018 MUM Chendu of China

MikroTik

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- www.Anywlan.com Webmaster，Wlan Project Manager
- MikroTiK MTCNA, MTCWE, MTCTCE Certifications

Mikortik网络解决方案在中国校园网的应用介绍

在过去很长的一段时间内，中国的校园无线网络建设主要集中在中大型高等院校，采用的网络解决方案供应商也通常为传统一线品牌网络设备供应商

如今随着学生移动端信息化需求的迫切提升，校园无线网络建设开始逐步在中等职业学校普及，这类学校受限于网络信息化项目投入成本和预算的考虑，往往会采用国内二三线网络产品供应商的无线解决方案以节省成本，在中国很多校方还采用和集成商或厂商共同建设和运营的方式来部署校园无线网络

在传统一线和二三线品牌的网络解决方案供应商之间， Mikortik–Routeros提供了一个具有较高性价比和稳定性，易于管理的校园无线网络解决方案

The Mikortik network solutions of Campus Network in china

In the past long period of time, China's campus wireless network construction mainly concentrated in the large and medium-sized colleges and universities, the use of network solutions provider is usually the traditional first-line brand network equipment suppliers.

Today, as students move urgently to enhance the information technology needs, Campus wireless network construction began to gradually spread in secondary vocational schools, Such schools are limited by the cost and budget of network information projects, Often using second and third tier suppliers of network products wireless solutions, Many schools in China also use and integrators or vendors to jointly build and operate the way to deploy campus wireless network

Between the traditional first-line and second and third tier brands of network solutions provider, Mikortik-Routeros provides a highly cost-effective and stable, easy to manage wireless campus network solutions

MikortiK 网络解决方案在中国及校园网应用前景展望

- 低成本优势
- 基于底层linux核心开发相对可靠的安全性
- 良好的第三方程序对接开发能力，适应校园OA系统集成开发
- 良好的硬件稳定性支撑，从适用于小型网络到中型网络部署的跨越，不断升级适应未来到大型网络的部署应用
- 特别适合低成本预算又有高稳定性要求的网络环境，随着MikrotiK产品技术培训的推进，未来在中国MikrotiK的网络解决方案会更加普及

MikrotiK network solutions in China's application prospects

- Low cost advantage
- Based on the underlying Linux Kernel development， Relatively reliable security
- Good applications docking development capabilities ， Adapt to the development of campus OA system
- Good hardware stability ，Suitable for small network to medium-sized network deployment span, escalating to adapt to the future deployment to large networks
- Particularly suitable for low-cost budget and high stability requirements of the network environment ， With the advancement of MikrotiK technical training, MikrotiK's network solutions will be more popular in China in the future

中国中职学校校园无线网络建设部署及现状分析

- 大多采用传统的室内分布式方式部署，无线AP射频性能底下
- 缺乏有效的维护和管理，基本处于无人维护和管理状态
- 缺乏维护和管理导致用户关联使用率很低。
- 中国传统ISP提供建设和运维，导致运维服务响应不及时
- 学生用户手持移动终端的普及，旺盛的无线网络接入需求，对无线网络的重度需求和依赖

中国中职学校校园无线网络建设部署及现状分析

Wireless campus network construction and deployment status of Chinese vocational schools Analysis

- Traditional indoor distributed wireless coverage system ，Low RF performance
- Lack of effective maintenance and management
- Chinese traditional ISP provides construction and maintenance, resulting operation and maintenance services not timely response
- Student users handheld mobile terminal popularity, strong demand for wireless network access, heavy demand for wireless networks and dependencies

Wireless campus network construction and deployment status of Chinese vocational schools Analysis

MikrotiK 解决方案在中国无线校园网的实际应用

安徽省安庆市海军学校校园无线网实际应用

Anqing City, Anhui Province Naval vocational schools campus wireless project case

MikrotiK校园无线网络项目方案介绍及经验分享

- 项目需求分析
- 现场工勘
- 方案设计
- 项目施工
- 无线覆盖打点测试及验收

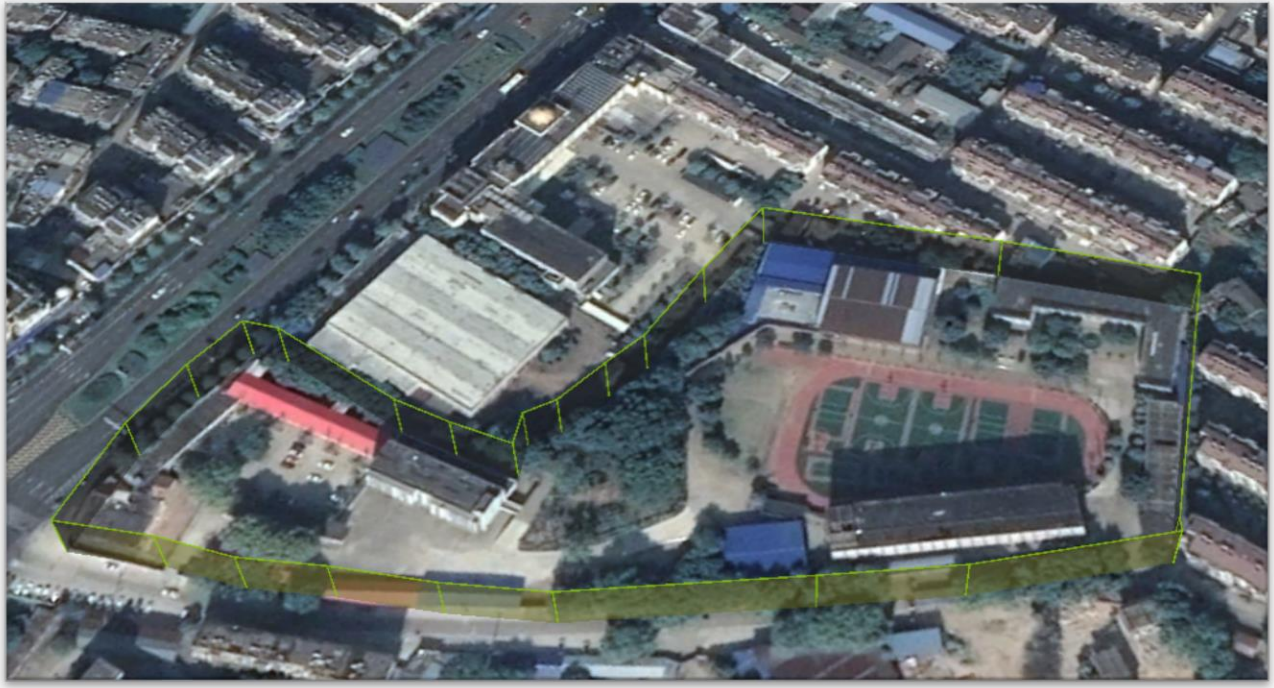
MikrotiK campus wireless network project introduction andexperience sharing

- Project requirements analysis
- Pre-design site survey
- Design of network topology
- Project construction
- Wireless coverage testing and acceptance

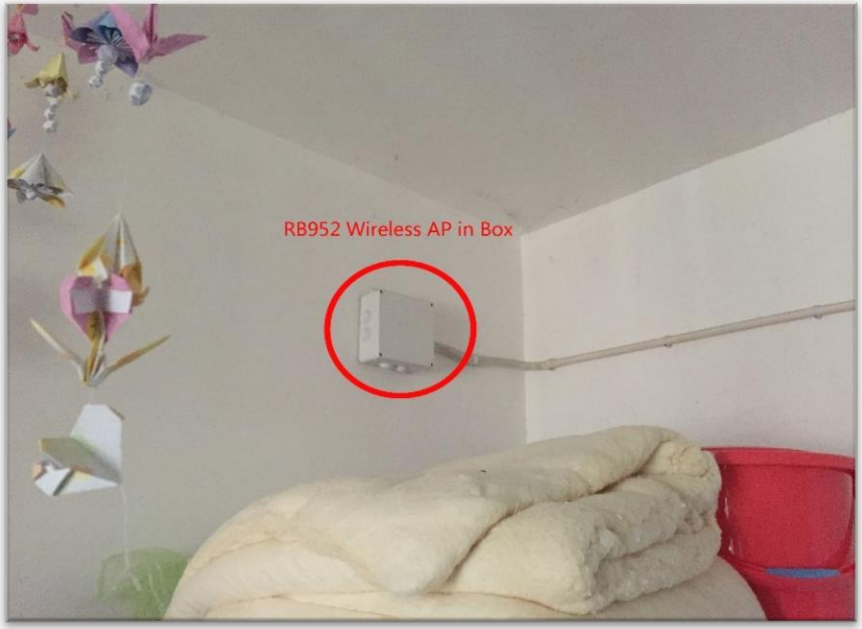
MikrotiK校园无线网络项目方案介绍及经验分享

MikrotiK campus wireless network project introduction and experience sharing

无线覆盖区域鸟瞰图 Aerial view of wireless coverage area

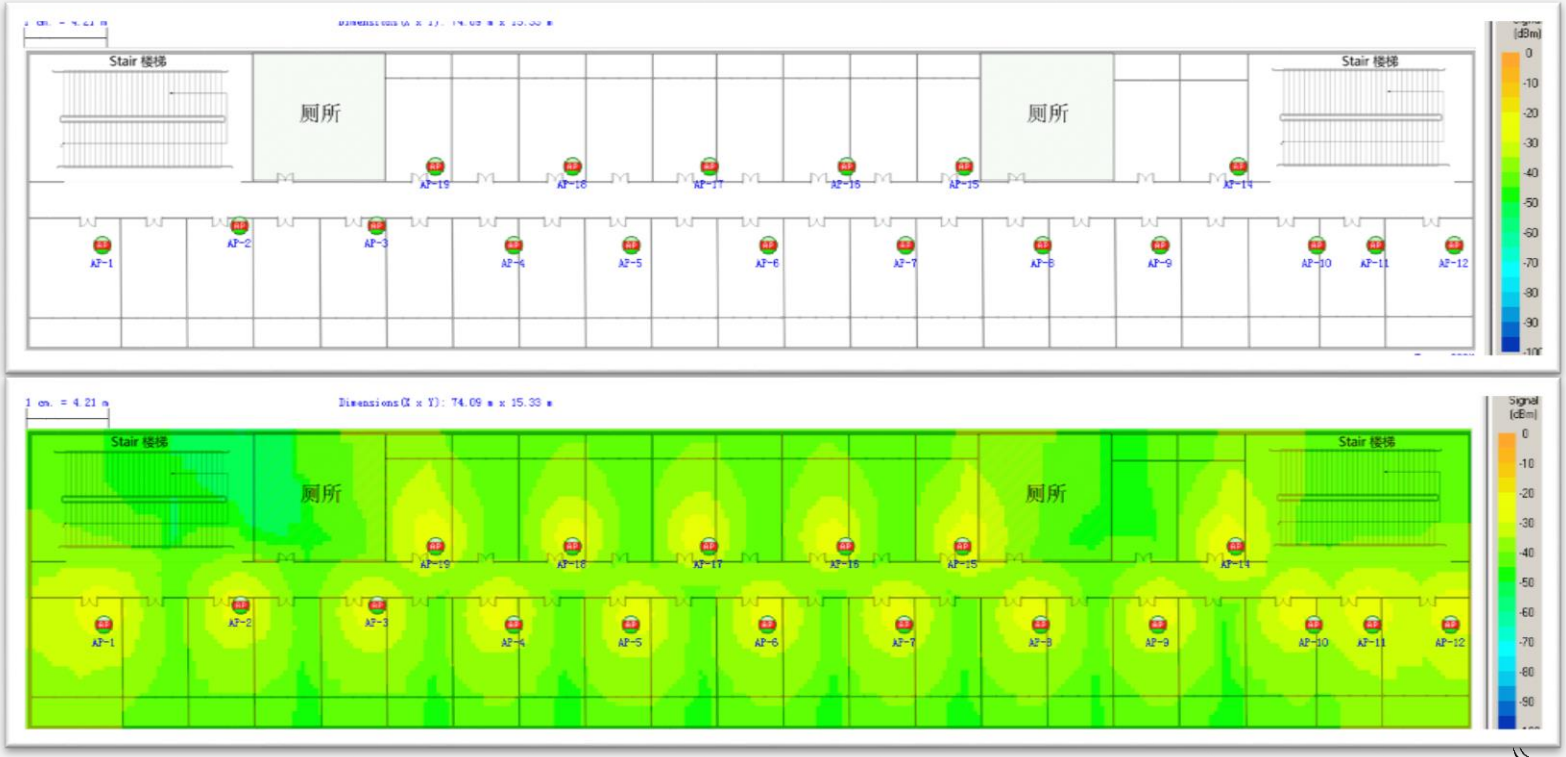


WLAN部分规划设计（宿舍区域无线覆盖设计）

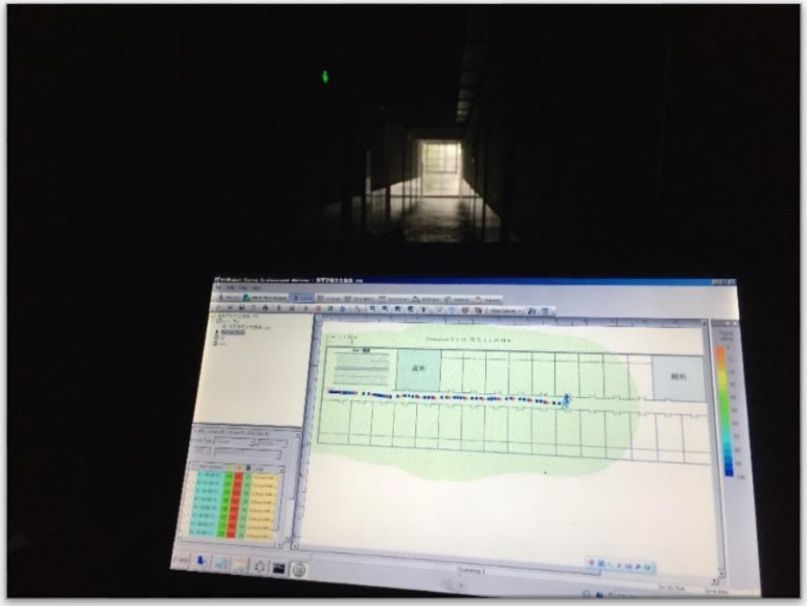


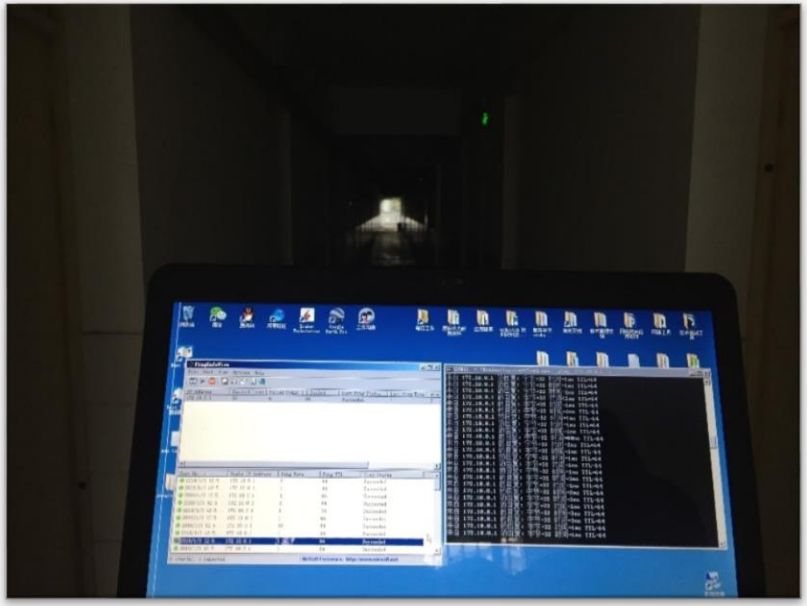
WLAN部分规划设计（宿舍区域无线覆盖设计） Heat Map Design

根据现场工勘实际环境，设计规好宿舍区域无线AP安装（RB952）点位图，进行仿真建模，制作仿真覆盖热力图

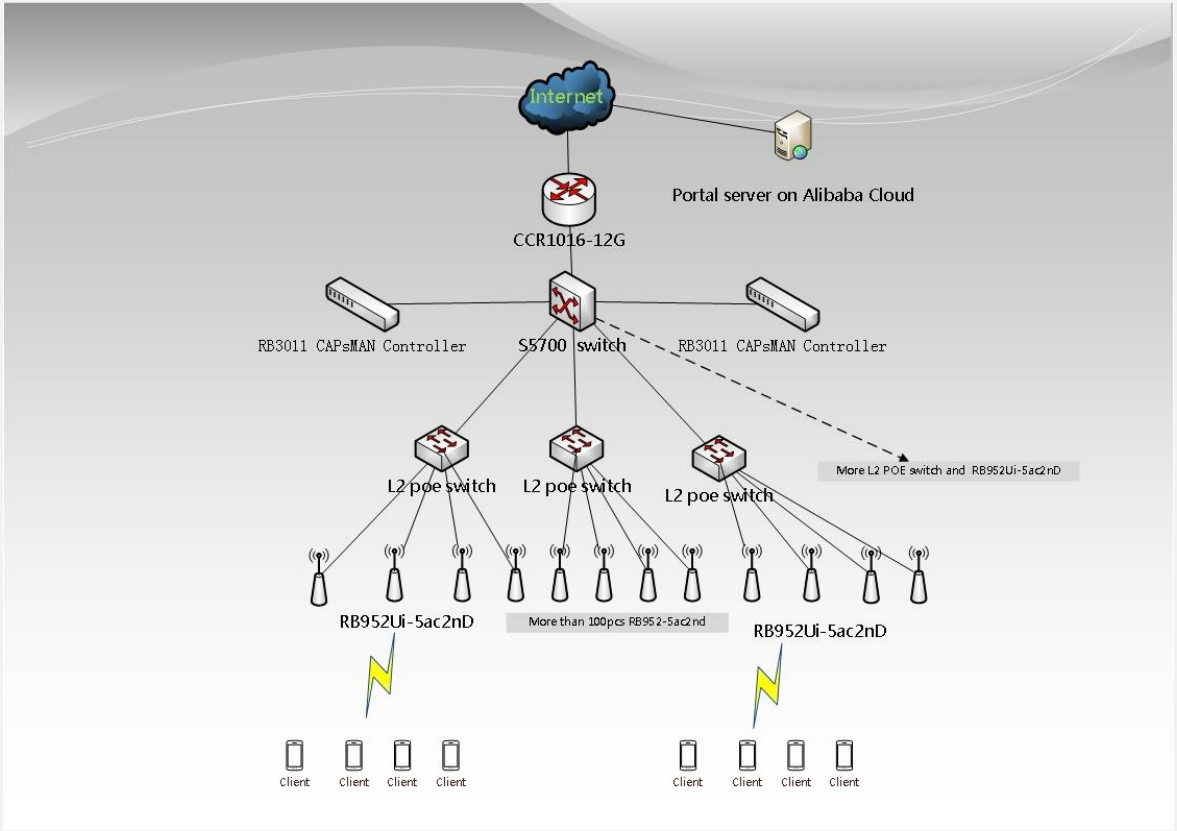


WLAN覆盖验收打点测试 WLAN coverage signal acceptance survey





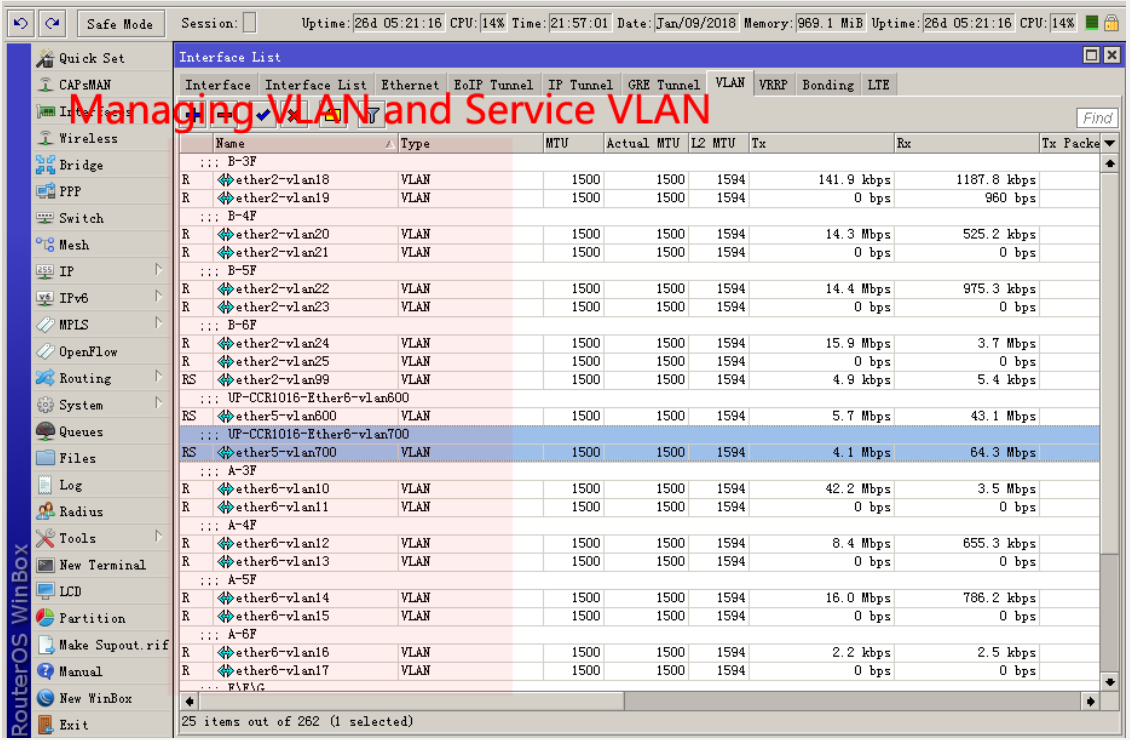
总体网络拓扑规划 Network topology



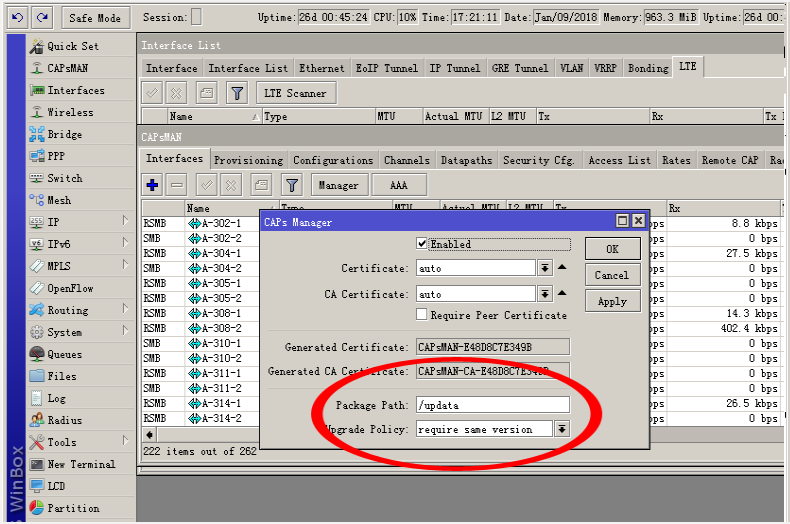
网络规划设计 Network Planning and Design

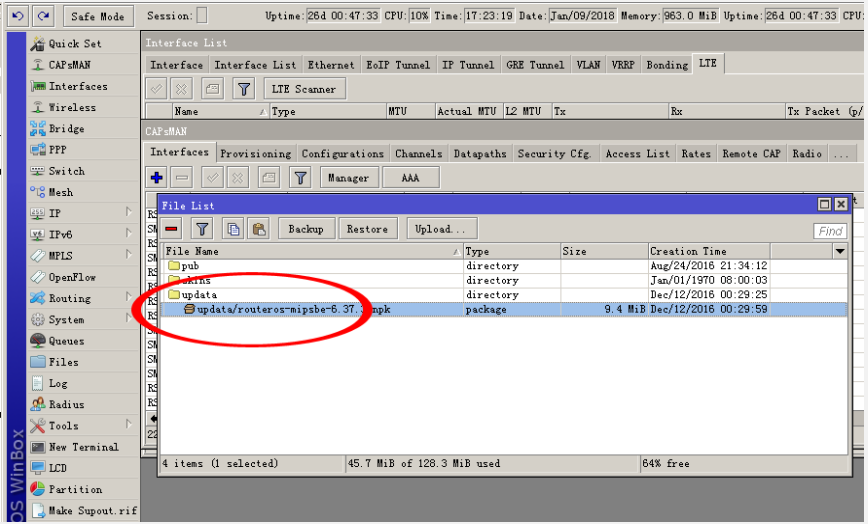
- 采用1台CCR1016-12G 作为主路由和网关以及防火墙设备，2台RB3011作为CAMsMAN控制器管理 RB952 双频无线AP,因为用户数不是很多,采用S5700二层交换机做为数据汇聚交换机,3层路由功能由CCR1016来承担.
- 共计采用100多台RB952双频AP部署在学校学校宿舍区域,公共活动区域及食堂区域
- CAMPsMAN采用本地转发模式,所有数据从CCR1016-12G 转发,数据转发延迟及开销最小
- CAMPsMAN和CAP分别配置2个VLAN通道,一个VLAN通道用做管理VLAN,一个用作业务VLAN, 分割了广播域,尽可能地较少二层广播风暴
- 管理VLAN和业务vlan通过S5700汇聚交换机透传下发到校园每个区域的接入层POE交换机,物理链路通过铜缆和光纤连接
- CAMPsMAN和CAP之间,设置号update文件目录.只需要在CAMsMan files文件内添加进CAP的升级文件,每次重新下发配置时候,CAP将自动升级
- CAMPsMAN和CAP之间连接全部采用二层通信,无需繁琐的配置,没有了ARP的问题,相对AC-AP之间通信通常采用3层隧道, ,没有了ARP的问题,相对节省了CPU性能资源.

网络规划设计：VLAN规划 VLAN Configuration

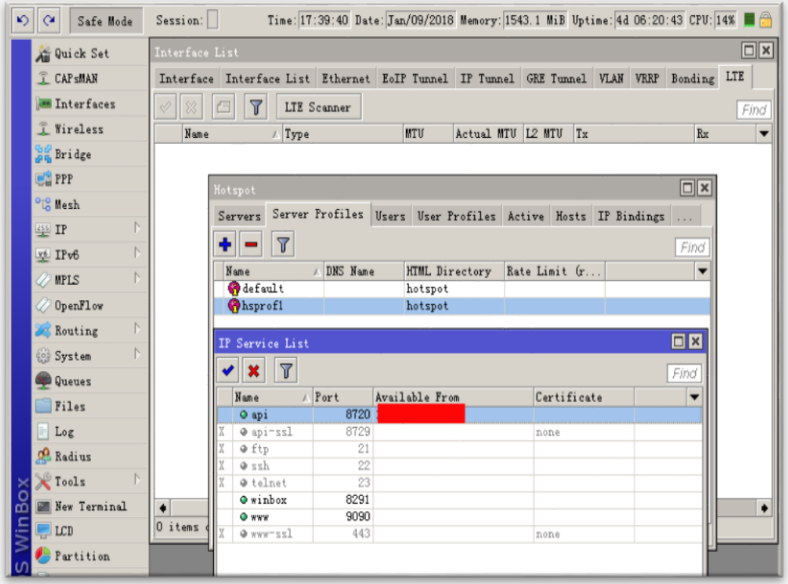


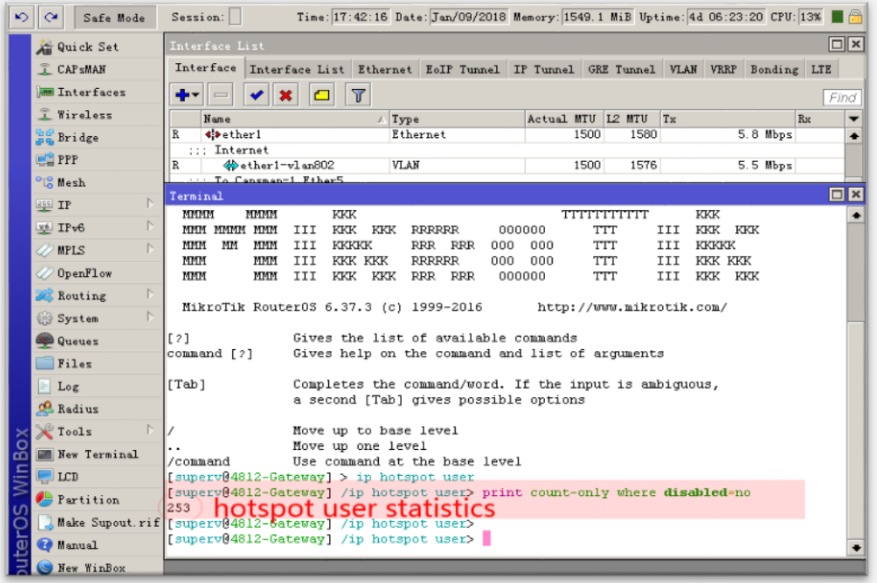
网络规划设计：Cap Fireware Upgrade





Portal 认证服务器对接（基于API端口对接，非RADIUS）





计费平台管理和移动端

MikroTik

计费平台管理和移动端

Portal

其他应用 ：Mikrotik 无线网桥在农村宽带中的应用

Other : Mikrotik Wireless Bridge in Rural Broadband Applications

其他应用：MikrotiK无线网桥在无线监控项目中的应用

Other : Mikrotik Wireless Bridge Device in Monitoring project Applications

其他应用：MikrotiK CCR系列路由器在高密度无线覆盖场景里的应用

MikrotiK CCR Series Router using in High Density Wireless Coverage Scenes

其他应用：MikrotiK CCR系列路由器在高密度无线覆盖场景里的应用

MikrotiK CCR Series Router using in High Density Wireless Coverage Scenes

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特别感谢:

深圳捷联讯通科技有限公司

MikrotiK 公司

Routeros 培训老师：吴伟民先生

我的圈内好友:唐黎明 ，洪磊 ，洪逸峯 袁登霄 ， 宋波先生，以及通过了解使用Mikrotik-Routeros产品认识的新老朋友

Special Thanks:
EDCwifi Company
Mikrotik Company
MikrotiK Tranner：Weiming Wu
My friends ,Liming Tang ，Eric Hong ， Michael Hong， Maimaiti Yuan， Bober Song

谢谢关注

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行内通用无线工程案例资讯，可浏览 www.anywlan.com,无线工程版面查阅

ThanKs For Listening

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