A BANDWIDTH EFFECTIVE AND VLAN SUPPORT ACCESS POINT DESIGN FOR 802.11 WIRELESS INFRASTRUCTURE NETWORKS

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ABSTRACT

ONE OF THE MOST ATTRACTIVE FEATURES OF THE VIRTUAL LOCAL AREA NETWORK (VLAN) IS THE CAPA -BILITY TO GROUP USERS FROM DIFFERENT PHYSICAL LAN SEGMENT INTO A SINGLE BROADCAST DOMAIN. VLANS, THUS, FACILITATE EASY ADMINISTRATION OF LOGICAL GROUPS OF STATIONS THAT CAN COMMUNI -CATE AS IF THEY WERE ON THE SAME LAN.IN ADDITION, THE TRAFFIC BETWEEN VLANS IS RESTRICTED. THIS LIMITS THE PROPAGATION OF MULTICAST AND BROADCAST TRAFFIC BETWEEN VLANS.THESE TWO FEA -TURES MAKE THE VLAN MORE REWARDING IN THE WIRELESS ENVIRONMENT WHERE THE BANDWIDTH IS QUI -TE LIMITED AND CONSTANT MOVING OF THE MOBILE STATIONS IS HIGHLY ANTICIPATED. THE GOAL OF THIS PAPER IS THE PROVISION OF THE VLAN INTERCONNECTION OVER THE SHARED MEDIUM METROPOLIT -AN AREA ENVIRONMENT WHERE WIRED AND WIRELESS LAN CO-EXIST. IN SUCH A MOBILE VIRTUAL LAN (MVLAN) ARCHITECTURE, AFTER THE REGISTRATION TO A SPECIFIC MVLAN, A MOBILE STATION'S BROAD CAST DOMAIN SHOULD BE INDEPENDENT TO ITS CURRENT LOCATION. FOR SUPPORTING SUCH MOBILITY IN METROPOLITAN AREA ENVIRONMENTS, WE PRESENT IN THIS REPORT PROTOCOLS REQUIRED IN THE DESIGN OF VLAN SUPPORT ACCESS POINT (VSAP). IN PARTICULAR, A HANDOFF PROTOCOL AND AN MVLAN MEMBER TRACKING PROTOCOL ARE PROVIDED TO ACHIEVE THE EFFICIENT AND TRANSPARENT HANDOFF OF MOBILE STATIONS OVER MVLAN.

Keywords : VIRTUAL LAN (VLAN),WIRELESS LAN, BRIDGE, METROPOLITAN AREA NETWORK (MAN), MOBILE STATIONS, MOBILE VLAN(MVLAN), VLAN SUPPORT ACCESS POINT (VSAP).

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