



RAD

data communications



Multiservice Access Platform

for Carriers, Operators and Service Providers



- Flexible Access Equipment
- Rapid Deployment of Multiple Services
- Reduced Provisioning Costs
- Immediate Multiservice Revenues
- Lower Cost of Service





Multiservice Access Platform

for Carriers, Operators and Service Providers

There's an intense struggle going on for supremacy in the international telecommunications market. It's taking place wherever deregulation allows free and open competition to provide data and voice communications services. The competitors are carriers, telecom operators and service providers.

The objectives are quite clear. New carriers and service providers need to get the most out of their massive investment in network equipment as soon as possible. They must build a solid customer base quickly, while generating sufficient cash flow to cover their start-up costs. For the

first time, incumbent operators are closely examining the cost of operations and profitability as they fight to retain the lion's share of their former monopoly businesses and break into new markets.

RAD Data Communications offers all parties to the contest a winning service deployment strategy. It is designed to speed return on investment in access network equipment and Local Loop plant, as well as to rationalize the roll out of a variety of services. Most important for the bottom line, carriers can quickly generate income without incurring substantial infrastructure costs up front.

Carrier Benefits of MAP

More effective bandwidth utilization

Lower cost of service for carriers and customers

Wider range of applications and services to users

Less on-site equipment at customer premises

Easy upgrades for new applications and services

Integrated network management

P



Multiservice Access Platform Product Family

Megaplex feeder multiplexer



FCD integrating multiplexer



DXC access concentrator



The flexibility and range of RAD's customer premises equipment lowers the cost of entry for introducing new services, offering economical and easy connection of potential customers to any existing carrier backbone network.

MAP: Integrated Scalabl

RAD's Multiservice Access Platform is based on deploying the company's specialized multiservice access equipment at the customer premises, in the Local Loop and at the carrier's POP (local access node). The MAP product family includes the FCD range of integrating multiplexers, Megaplex line of access multiplexers (hybrid and TDM), and the DXC series of access concentrators.

Flexible Customer Premises Solutions

The FCD features data, LAN, and voice service interfaces, including S0, and built-in fiber optic or HDSL modems (HCD-E1) on the main trunk. RAD's Megaplex-2100/2200 multiplexers offer a wide range of data, LAN, and voice service interfaces, including ISDN extension and tail-end modems, and up to four E1/T1 trunks (including hybrid TDM and Frame Relay connectivity) with built-in fiber optic and HDSL main trunk modems. The DXC digital access concentrator contains built-in HDSL and fiber optic modem port interfaces on the line, facilitating cost-effective extension of customer connectivity in the Local Loop over two-wire, four-wire and fiber lines.



DXC digital access concentrator

For transporting voice traffic, MAP supports a range of analog and digital voice connections – PCM, ADPCM, G.723.1, BRI ISDN, and digital E1/T1.

Connect Customers to Existing Backbone

MAP also enables carriers to benefit from planned incremental deployment of all components of the access network. Rather than having to estimate user service requirements and deploy complex switching facilities based on unproven projections, MAP allows carriers to roll out their access networks according to actual customer needs, expanding the network as usage increases. Moreover, MAP helps generate revenues immediately, without a major capital outlay for new infrastructure.

Concentration of Corporate Voice and Data Services

RAD's MAP product line makes it easier and more cost-effective for carriers to roll out mixed voice and data services to outlying areas. The DXC (with optional V5.2 protocol interface) can concentrate BRI and PRI ISDN as well as analog voice over

Backbone Network

Flexible

E1s

V5.2

E3s

E1s

E1s

E3s

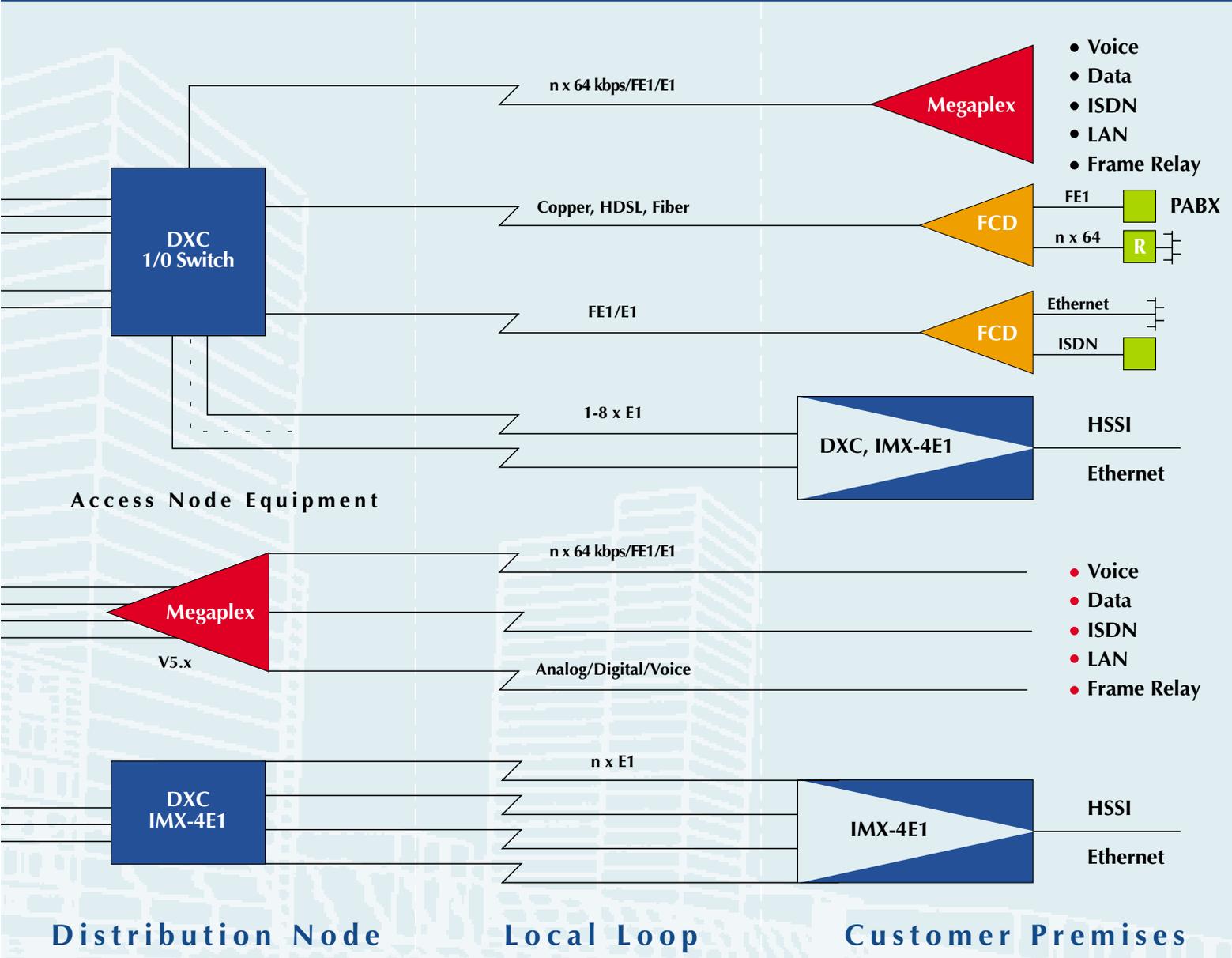


e Solutions

E1/Fractional E1, directly connecting all voice and ISDN traffic to the voice switch at the central office through the V5.2 protocol interface. Frame Relay, IP and other data traffic is routed to the appropriate data switches at the POP, according to pre-configured timeslots.

By deploying RAD's FCD and Megaplex with built-in modems at the customer premises opposite the DXC, carriers can eliminate the need for external modems and modem racks in the Last Mile. No other vendor offers such a complete, integrated transmission and switching solution.

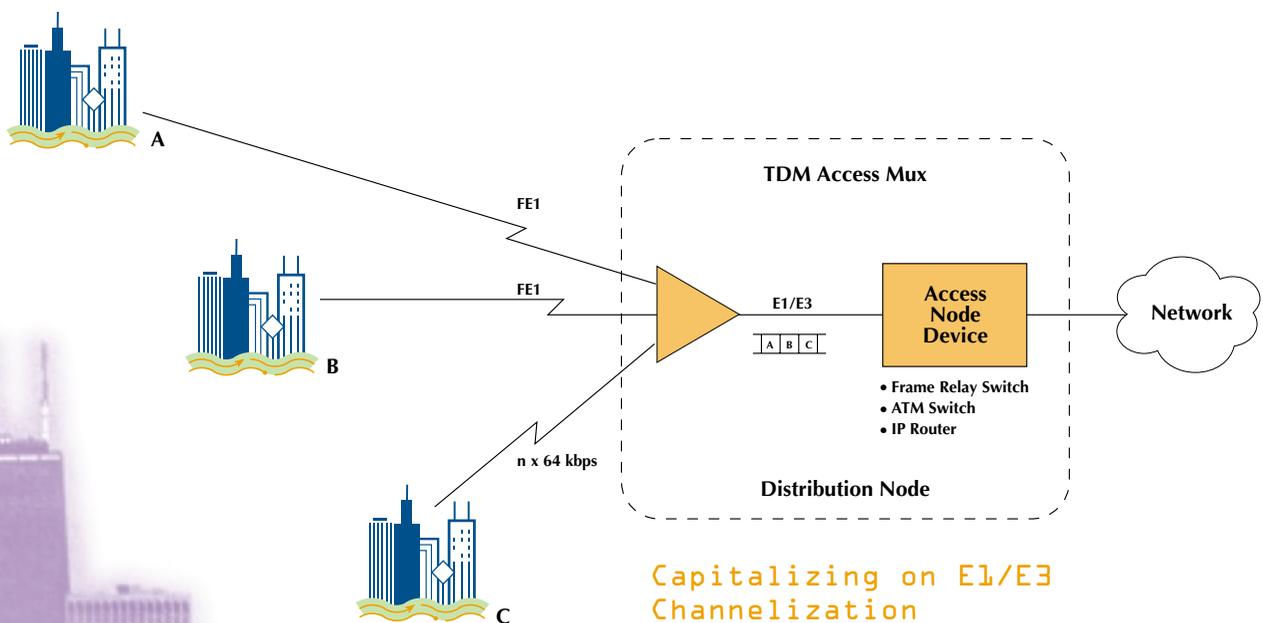
Customer Premises Equipment for Multiservice Access



Cost-Effective Port Expansion for Frame Relay and IP Switches

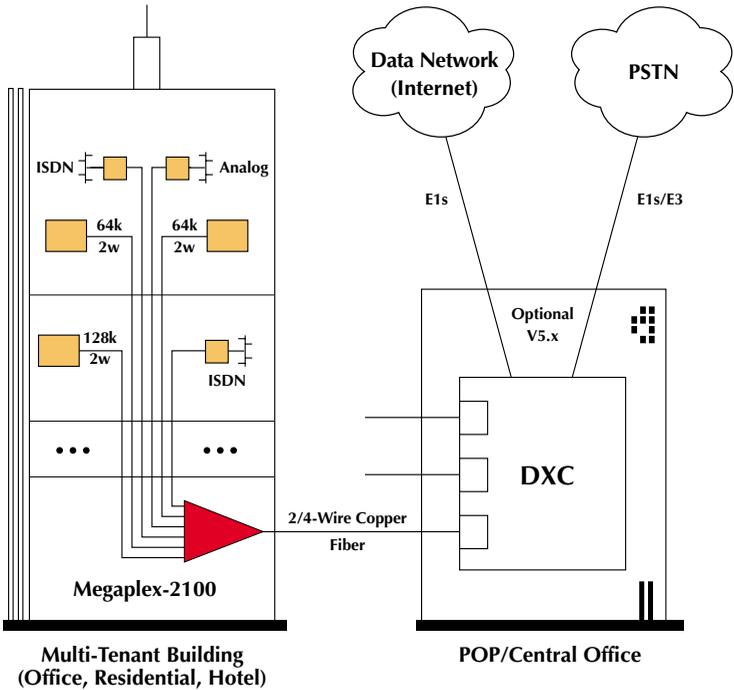
Because customer access to Frame Relay and IP networks today typically runs at data rates below E1/T1, it makes good business sense to groom this sub-rate or Fractional E1/T1 traffic to a channelized E1/T1 feeder multiplexer or concentrator, such as RAD's Megaplex and DXC. Carriers benefit by saving expensive E1/T1 WAN ports on their access switching equipment and by installing

cost-attractive feeder multiplexers and access concentrators instead of more expensive switching equipment at the distribution node. Additional savings are available since RAD offers integrated tail-end and main link modems built into its products. Many operators have begun to adopt this sensible solution, which significantly reduces their infrastructure outlays.



Digital Loop Carrier Applications

RAD enables operators to enter the DLC market quickly and economically. By deploying Megaplex-2200 E1/T1 multiplexers at remote distribution nodes, carriers are able to offer integrated transport of voice, data and ISDN on the same E1/T1 trunks. The Megaplex-2200 will support V5.1 and V5.2, enabling ISDN BRI and POTS to ride together over the same E1 main link to the central office main switch.



International Projects

In an era when applications freely cross national and regional boundaries, it is essential to choose a vendor with truly international capabilities. With a sales and service network of expert partners spanning 92 countries, RAD is in an ideal position to offer worldwide installation and management for the most complex projects. The company's international service policy, which offers a single point of contact for project administration, can assist in designing and implementing a wide range of data and voice communications systems.

This program is carried out with the active participation of RAD's international partners, who are trained to qualify as certified RAD engineers. As your system grows, these partners are available to evaluate your future requirements and offer professional consultation and product solutions.

City Network Applications

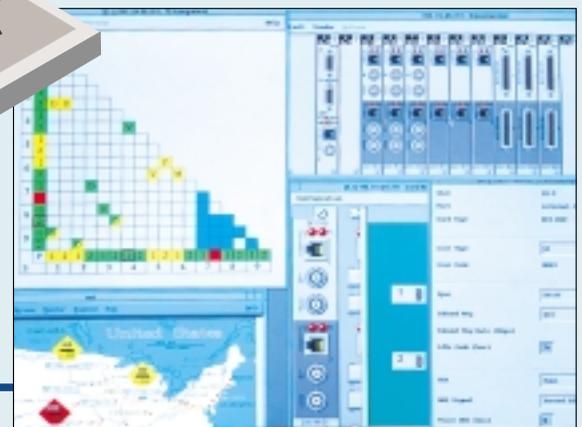
The opening of the communications market to competition has changed the paradigm for connecting all types of multi-tenant buildings – business parks, hotels, and residential complexes. In RAD's solution, the service provider locates multiservice access nodes in the multi-tenant building to ensure effective provisioning of multiple or single services to all tenants. These include transport of voice, Internet access, telemetry, measurement, alarm systems and other data communication needs. These access nodes are connected to the distribution node over two/four-wire copper or fiber links, while the tenants are connected by smart access devices over existing building wiring.



Network Management

MAP's graphical HP OpenView-based SNMP management package integrates easily with backbone management platforms. Remote nodes can be managed in-band through the DXC or routed over Frame Relay and PPP.

Integrated network management



- International Headquarters**
 RAD Data Communications Ltd.
 12 Hanechoshet Street
 Tel Aviv 69710, Israel
 Tel: 972-3-6458181
 Fax: 972-3-6498250
 email: market@rad.co.il
- U.S. Headquarters**
 RAD Data Communications, Inc.
 900 Corporate Drive
 Mahwah, NJ 07430, USA
 Tel: 1-201-529-1100
 Toll free: 1-800-444-7234
 Fax: 1-201-529-5777
 email: market@radusa.com
- Far East**
 RAD Far East Ltd.
 Suite A, 26/F, One Capital Place
 18 Luard Rd., Wanchai
 Hong Kong, China
 Tel: 852-25270101
 Fax: 852-25284761
 email: market@radfe.com.hk
- Latin America**
 RAD América Latina S.A.
 Viamonte 1345-3° Piso "G"
 1053 Buenos Aires, Argentina
 Tel: 54-11-43714000
 Fax: 54-11-43710734
 email: info@radal.com.ar
- Scandinavia**
 RAD Scandinavia ApS
 Farum Gydevej 87
 3520 Farum, Denmark
 Tel: 45-44342030
 Fax: 45-44342039
 email: info@radscandinavia.dk
- Brazil**
 RAD do Brasil Ltda.
 Av. Irai, 79-Conj. 92-B, Moema
 São Paulo SP CEP 04082-000, Brazil
 Tel: 55-11-55611309
 Fax: 55-11-5352879
 email: market@radbr.com.br
- Canada**
 RAD Canada
 6600 Trans Canada Highway, Suite 750
 Pointe Claire, Quebec H9R 4S2, Canada
 Tel: 1-514-694-6380
 Fax: 1-514-694-6471
 email: djones@radusa.com
- China**
 RAD China Beijing
 Grand Pacific Building, Suite 530
 No. 8, Guanghua Road, Beijing, China
 Tel: 86-10-65084888
 Fax: 86-10-65080588
 email: radchina@public.bta.net.cn

 RAD China Shanghai
 Unit 11, 16/F, Central Plaza
 227 Huangpi Road N.
 Shanghai 200003, China
 Tel: 86-21-63758691/2
 Fax: 86-21-63758693
- France**
 RAD France
 Immeuble l'Européen
 98, allée des Champs-Élysées
 91042 Evry cédex, France
 Tel: 33-1-60878500
 Fax: 33-1-60878501
 email: rad.france@rad.co.il
- Germany**
 RAD Data Communications GmbH
 Berner Str. 77
 60437 Frankfurt / M, Germany
 Tel: 49-69-950022-0
 Fax: 49-69-950022-99
 email: lior@rad.co.il
- United Kingdom**
 RAD Data Communications Ltd. (UK)
 Richmond House, Bath Road
 Newbury, Berks RG14 1QY, England
 Tel: 44-1635-553012
 Fax: 44-1635-552126
 email: grant@rad.co.il



data communications

<http://www.rad.com>



Multiservice Access Platform

