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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Mr. William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, NW Room 222
Washington, DC 20554

Re: EX PARTE - (CC Docket No. 96-45) - Federal State Joint Board On Universal Services

Dear Mr. Caton:

Today, Bruce Cox, Richard Clarke and I, all of AT&T, met with Paul Gallant, Legal Advisor to Commissioner J. Quello. The purpose of this meeting was to discuss the Hatfield model. The attached charts were distributed.

Two copies of this Notice are being submitted to the Secretary of the FCC in accordance with Section 1.1206(a)(1) of the Commission's rules.

Sincerely,

Brian W. Masterson

cc: Mr. P. Gallant

Attachment

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Recycled Paper

Hatfield Model, Release 3

Forward-Looking Economic Costs of Universal Service, Carrier Access and Unbundled Network Elements

Model Developed by
Hatfield Associates
for AT&T and MCI

Universal Service Joint Board
Washington, D.C.
February 1997

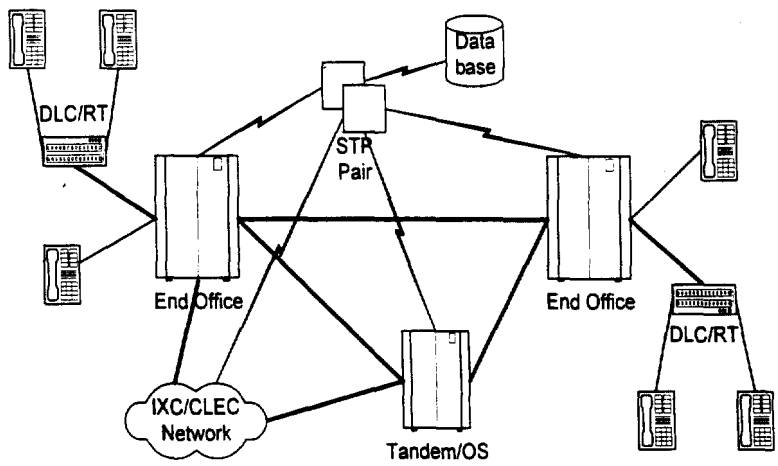
Presentation overview

- What is the Hatfield Model?
- What network elements does it model?
- How does the Hatfield Model work to calculate forward-looking economic costs?
- Comparison of Hatfield Model with other proxy cost models

What is the Hatfield Model?

- A model of a reconstructed local exchange network that assumes:
  - Modern technology will be employed in efficient network configurations
  - Wire centers will remain in their current locations
  - All narrowband demand in area will be served
  - Carrier will operate using efficient practices
- The cost of such a network would equal that incurred by an efficient competitor

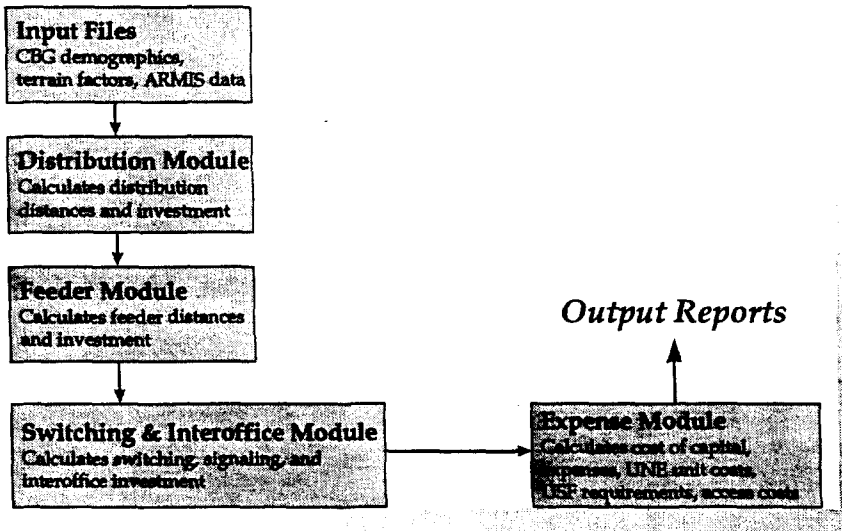
Complete Local Network Modeled



What does Hatfield calculate?

- Cost of unbundled network elements
  - Loop (NID/Dist'n/DLC/Feeder) by density zone
  - Local/tandem switching
  - Interoffice transport
  - Signaling systems and databases
  - Operations support systems
  - Operator systems and public phone services
- Cost of universal service by density zone
- Cost of carrier access and other interconnection services

Release 3 flowchart



Input Data

- Determination of lines/minutes/call attempts demand quantities in each CBG
  - Residence / Business / Public / Special
- PNR/Donnelly/Claritas/U.S. Census determination of residential first and "second" lines
  - Using age and income demographics
- PNR/Dun & Bradstreet determination of business lines
  - Using employees and SIC telephone intensity

Input Data

- PNR assignment of CBGs to serving wire centers
  - Based on mode wire center as determined by Donnelly list of geo-coded NPA-NXXs
- Traffic quantities
  - From ARMIS
- User-adjustable inputs
  - National default values pre-entered
  - Integrity of the model depends on the reasonableness of these parameter values

Loop Investments

- Distribution cable quantities calculated to ensure all demand is served
  - Empty CBGs and empty area within CBGs
  - Grid / clustering patterns
  - High-rise patterns
  - Extension of feeder into CBG quadrants
- Engineering of longer distribution loops
  - Ensures high quality voice and data transmission performance
  - Is economical for universal service

Loop Investments

- Feeder is either copper or fiber
  - Based on user-adjustable crossover point
  - Default is 9000 feet
- Fiber feeder is used to carry modern Integrated Digital Loop Carrier (IDLC)
  - Bellcore TR-303 compliant
  - 100% redundant

Switching Investments

- Logarithmic switching investment curve
  - Large LECs (larger vendor discounts)
  - Small LECs (smaller vendor discounts)
- Switches sized to serve specific demands placed on them
  - Lines / minutes / call attempts / holding time
  - Engineered with required administrative underfill

Interoffice Investments

- Trunking is over a combination of SONET fiber rings and point-to-point facilities
- Costs calculated for:
  - Dedicated access (including entrance facilities)
  - Common (EO-Tandem) transport
  - Direct (EO-EO) transport
- SS7 signaling network including:
  - Signaling links
  - Signal Transfer Points (STPs)
  - Databases / Service Control Points (SCPs)

Expenses

- Depreciation
  - Calculated for 23 separate plant categories
  - Based on approved economic projection lives adjusted for net salvage value
- Cost of capital calculations based on midyear net investments
- Income tax gross-ups on equity returns
- Fully adjustable returns to debt and equity and D/E ratio

Expenses

- Forward-looking operating expenses disaggregated across multiple categories based on:
  - Amount of investment supported
  - Number of lines served
- Corporate overheads
  - Computed explicitly for General Support Facilities
  - Additionally added as a percentage of direct costs
- Regional labor cost adjustments possible

Output Reporting

- By nine lines density zones
  - Further disaggregated by DLC/nonDLC lines
- By wire center
- By individual CBG
- Costs disaggregated by:
  - USF cost elements (loop, switch, transport, signaling, retail) with user-adjustable definition of supported basic service)
  - Fifteen unbundled network elements
  - Carrier access and interconnection

How Hatfield Builds Costs

- Determines customer demand
  - By geographical location, customer and service type
- Calculates efficient facilities investment required to serve demand
  - Materials / placement / installation
- Calculates capital carrying cost
  - Depreciation / return / taxes
- Adds network operations and support expenses
- Adds share of corporate overheads
- Adds sales/retail expense as appropriate

Running the Hatfield Release 3

- Basic model is written in Microsoft Excel
- Interface is Visual Basic
- Access database used to store data and scenarios
- All data and calculations are visible and auditable -- nothing locked
- Runs much quicker than v.2.2.2
- Can run on a typical desktop PC

Comparison With Other Models

Hatfield R3

- Combination of copper and DLC on fiber loop plant
- Digital end office and tandem switching
- SONET ring and point-to-point fiber interoffice transport
- SS7 signaling
- Public and operator

BCPM

- Combination of copper and DLC on fiber loop plant
- Digital end office switching, no tandems
- No interoffice transport modeled
- No signaling modeled
- No public phone or operator services

Comparison With Other Models

Hatfield R3

- Accurate count of res/bus lines by CBG
- Assignment of CBGs to wire center based on actual NPA-NXXs
- Usage (DEMs / call attempts) modeled

BCPM

- Imprecise count of res/bus lines by CBG
- Assignment of CBGs to wire center based on geographic centroid
- Usage not modeled

Comparison With Other Models

Hatfield R3

- Investments in entire network (loop, switching, transport, signaling, etc.) built explicitly
- Explicit calculation of monthly costs for 15 UNEs, disaggregated basic/universal service, and carrier access and interconnection

BCPM

- Loop and and partial switching investment built explicitly
- Explicit calculation of monthly costs for aggregated basic/ universal service

Comparison With Other Models

Hatfield R3

- Outputs reported at density zone, wire center or CBG level
- Analysis is auditable
  - Calculations open
  - Input data public
  - Outputs disaggregated
- Results specific to state, and COSA for USF, UNEs, and access

BCPM

- Outputs at density zone, wire center or CBG level
- Analysis is unauditable
  - Calculations black box
  - Input data proprietary
  - Outputs aggregated
- General results for USF

Summary

- The Hatfield Model calculates accurately the efficient forward-looking cost of both Universal Service and Unbundled Network Elements
- The Hatfield Model permits flexible analyses using data and input values that are are specific to the state/geography studied, e.g.,
  - Rate of return
  - Depreciation
- Output information is granular and exhaustive