WHITE PAPER

vMOX

WEIGHTED ALLOCATION

Determining the True Monthly Cost of a Line

Sharing, or pooling, provider data plans across multiple devices is an effective strategy used to minimize costly plan overages each month. Rather than purchasing individual data plans for each device, multiple devices share from the same pool of data. Under this arrangement there will never be overage charges for one user when others in the pool have unused data remaining, and overages will only occur when the combined usage of all users has reached the maximum usage allotment. To maximize the effectiveness of this pooling strategy, it is a best practice to balance heavy data users in pools with very low data users.

Lines (devices) included in usage pools are generally billed by the provider on an average cost basis – the overall monthly cost of the usage pool, divided by the number of lines that share it. Therefore, a drawback of these pooled usage arrangements is determining what the true cost, for cost allocation, chargeback or fraud/abuse identification purposes, for each device that is in included in the pool.

vMOX utilizes a complex Weighted Allocation methodology to determine the actual cost of each line in one of these shared pools. This gives customers a more accurate view of the consumption, and related costs, of each line they have in service. This methodology requires the following cost and usage data from monthly customer invoices:

TOTAL RECURRING COST	=	**VOICE + DATA + TEXT + TETHERING + MMS + TAXES + SURCHARGES – DISCOUNTS – CREDITS FOR ALL LINES OF SERVICE**
LINE LEVEL COST	=	**INTERNATIONAL USAGE CHARGES + 411 + EQUIPMENT FOR INDIVIDUAL LINES OF SERVICE**
TOTAL DATA USAGE	=	**TOTAL DOMESTIC DATA USAGE FOR ALL LINES OF SERVICE**
LINE DATA USAGE	=	**DOMESTIC DATA USAGE FOR SINGLE LINE OF SERVICE**

This information, in turn, is used to derive three component costs — Flat Rate Charge, Weighted Distribution of Usage Cost and One-time Charges — that when added together equal the Weighted Allocation Cost of a line.

FLAT RATE CHARGE

This is a static, but configurable, baseline charge that is assigned to each line of service before applying the appropriate weighted distribution cost. The amount is defined by the customer but will typically range from $10.00 to $35.00. Including a flat rate component in the total line cost ensures that each line in service will have a minimum monthly cost, and that lines with no usage for the month will not have a $0.00 total cost after the weighted distribution of cost component is added.

WEIGHTED DISTRIBUTION OF USAGE COST

This is the distributed cost of domestic data consumption for an individual line of service. To determine this, we calculate the average per GiG data cost for the entire usage pool by taking the total recurring cost less the total flat rate cost and dividing that by the total data usage number. We then multiply that number by the actual data usage for an individual line, and the result is the Weighted data usage cost for that line.

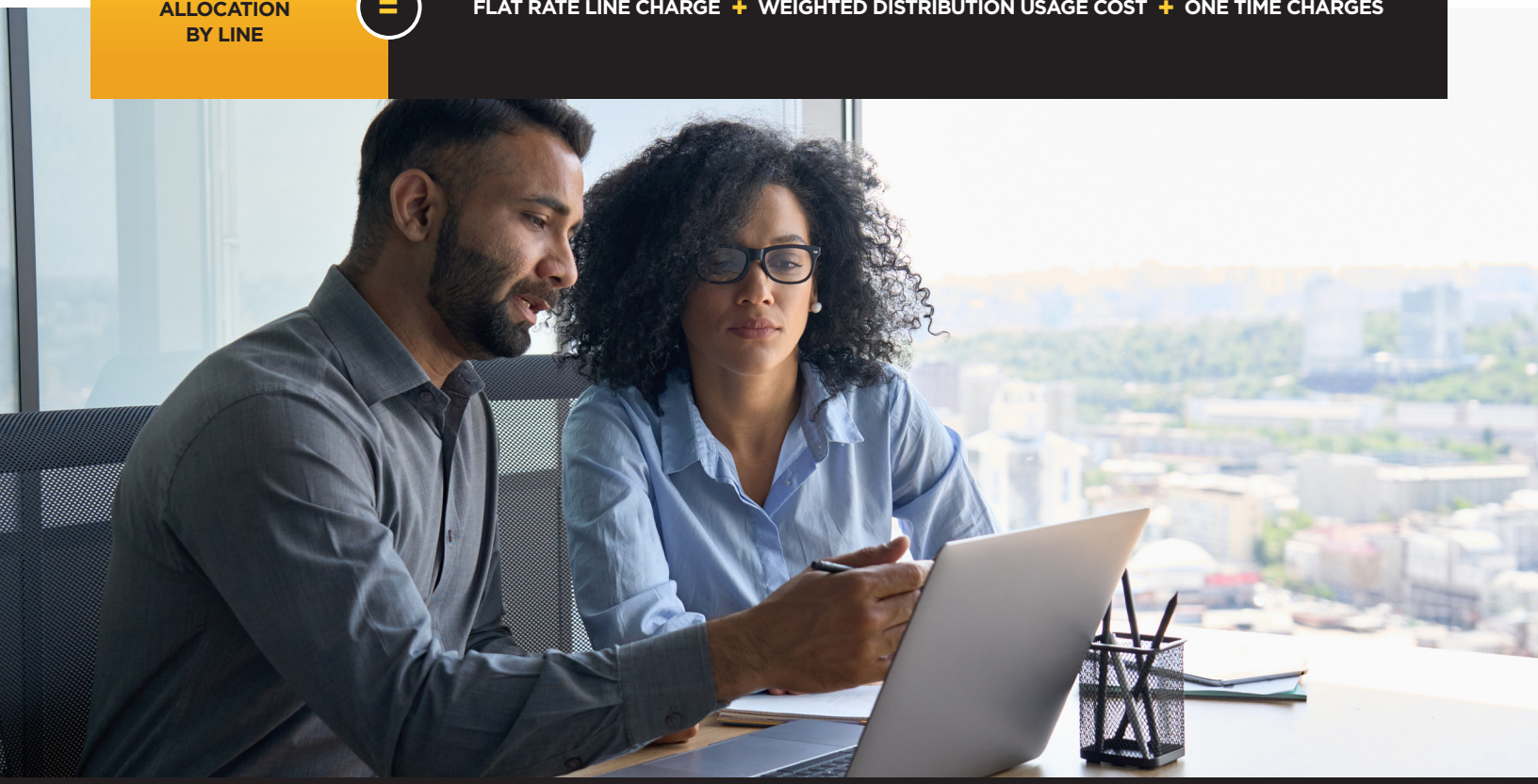
WEIGHTED DISTRIBUTION OF USAGE COST = **LINE DATA USAGE X** (**TOTAL RECURRING COST − TOTAL FLAT RATE CHARGE** / **TOTAL DATA USAGE**)

ONE TIME CHARGES

These are non-recurring charges that are specific to an individual line that should be kept at the line level for cost center/ charge back purposes. Included in these charges are items like International usage, equipment related fees, service/feature change charges and calls to 411.

Combined, these three cost components equal the **Total Weighted Allocation by Line**.

TOTAL WEIGHTED ALLOCATION BY LINE = **FLAT RATE LINE CHARGE + WEIGHTED DISTRIBUTION USAGE COST + ONE TIME CHARGES**



EXAMPLE

# LINES IN POOL	10
TOTAL DATA USAGE	93,064,246
FLAT RATE CHARGE	$35.00

	DATA FROM MONTHLY INVOICE					ALLOCATED DATA COST COMPONENTS			
USER NAME	**TOTAL COST**	**RECURRING COST**	**LINE LEVEL COST**	**LINE TOTAL**	**DATA USAGE**	**FLAT RATE CHARGE**	**WEIGHTED DATA USAGE COST**	**ONE-TIME CHARGES**	**TOTAL WEIGHTED ALLOCATION**
MARTY JONES	$156.90	$75.00	$81.90	$27.38	54,314,140	$35.00	$175.09	$81.90	$291.99
OLIVIA WILLIAMS	$156.90	$75.00	$81.90	$29.72	13,548,720	$35.00	$43.68	$81.90	$160.58
JOHN SMITH	$156.90	$75.00	$81.90	$78.08	9,459,800	$35.00	$30.49	$81.90	$147.39
LUCY WANG	$156.90	$75.00	$81.90	$29.71	6,104,838	$35.00	$19.68	$81.90	$136.58
RICH OCEAN	$176.80	$75.00	$101.80	$123.80	4,896,135	$35.00	$15.78	$101.80	$152.58
TIM SPENCER	$1,725.10	$75.00	$1,650.10	$54.89	1,981,124	$35.00	$6.39	$1,650.10	$1,691.49
JULIA ROMERO	$756.89	$75.00	$681.89	$29.71	1,354,988	$35.00	$4.37	$681.89	$721.26
BETTY JOHNSON	$221.65	$105.00	$116.65	$59.38	948,163	$35.00	$3.06	$116.65	$154.71
PAUL MILES	$1,020.91	$10.00	$1,010.91	$29.71	335,019	$35.00	$1.08	$1,010.91	$1,046.00
TY SMITH	$20.92	$10.00	$10.92	$29.71	121,319	$35.00	$0.39	$10.92	$46.31
	$4,549.87	**$650.00**				**$350.00**			**$4,549.87**

Marty Jones is the highest data user in this pool, with more than 4 times the usage than the next highest employee. But since the carrier only bills Marty for the plan he was on, his cost is the same as users with significantly less data consumption, including one who totaled one-ninth as much usage over the same period.

Using vMOX's Weighted Allocation model, Marty's usage cost is calculated as a true percentage of the overall usage of the group. Marty was responsible for more than half of the data group's data consumption, and under this model his allocated usage costs will now reflect that.

To determine the **Weighted Distribution of Usage Cost** for Marty's individual line:

$$54{,}314{,}140 \times \frac{(\$650 - \$350)}{93{,}064{,}246} = \$175.09$$

To determine the **Total Weighted Allocated Cost** for Marty's line, we add this to the Flat Rate charge and the Line Level charge:

$$\$35.00 + \$175.09 + \$81.90 = \$291.99$$