

## POINT 1

```
CREATE OR REPLACE TRIGGER "Switching"
AFTER INSERT ON "STATE_CHANGE"
FOR EACH ROW
WHEN (NEW.ChangeType='O' or NEW.ChangeType='F')
DECLARE
C_LOC NUMBER;

BEGIN

    SELECT CellID INTO C_LOC
    FROM CELL
    WHERE :NEW.x >= x0 AND :NEW.x < x1 AND :NEW.y >= y0 AND :NEW.y < y1;

    IF(:NEW.ChangeType = 'O') THEN
        INSERT INTO TELEPHONE(PhoneNo,x,y,PhoneState)
        VALUES(:NEW.PhoneNo, :NEW.x, :NEW.y, 'ON');
        UPDATE CELL
        SET CurrentPhone#=CurrentPhone#+1
        WHERE CellId=C_LOC;

    ELSE
        DELETE FROM TELEPHONE
        WHERE :NEW.PhoneNo = PhoneNo;
        UPDATE CELL
        SET CurrentPhone#=CurrentPhone#-1
        WHERE CellId=C_LOC;
    END IF;
END;
```

## POINT 2

```
CREATE OR REPLACE TRIGGER "Starting"
AFTER INSERT ON "STATE_CHANGE"
FOR EACH ROW
WHEN (NEW.ChangeType='C')
DECLARE
C NUMBER;
numMaxCalls NUMBER;
realTimeCalls NUMBER;
x0pos NUMBER;
x1pos NUMBER;
y0pos NUMBER;
y1pos NUMBER;
counter NUMBER;

BEGIN

    SELECT CellId, x0, y0, x1, y1, MaxCalls INTO C, x0pos, y0pos, x1pos, y1pos, numMaxCalls
    FROM CELL
    WHERE :NEW.x >= x0 AND :NEW.x < x1 AND :NEW.y >= y0 AND :NEW.y < y1;

    SELECT COUNT(*) INTO realTimeCalls
    FROM TELEPHONE
    WHERE x >=x0pos AND x<x1pos AND y >=y0pos AND y<y1pos AND PhoneState='C';

    IF(numMaxCalls=realTimeCalls) THEN
        --max number of calls reached
        --throw exception

        SELECT MAX(ExId) INTO counter
        FROM EXCEPTION_LOG
        WHERE CellId=C;

        IF(counter IS NULL) THEN counter:=0; END IF;
        --if counter is not present

        INSERT INTO EXCEPTION_LOG(ExId, CellId, ExceptionType)
        VALUES (counter+1, C, 'tooManyCalls');
    ELSE
        --I can add a call
        UPDATE TELEPHONE
        SET PhoneState='ACTIVE'
        WHERE PhoneNo=:NEW.PhoneNo;

    END IF;

END;
```

### POINT 3

```
CREATE OR REPLACE TRIGGER CHANGING
BEFORE UPDATE OF MaxCalls ON CELL
FOR EACH ROW
WHEN (NEW.MaxCalls < OLD.MaxCalls)
DECLARE
ActualCount NUMBER;

BEGIN

    SELECT COUNT(PhoneNo) INTO ActualCount
    FROM TELEPHONE
    WHERE :NEW.x0 <= x AND :NEW.x1 > x AND :NEW.y0 <= y AND :NEW.y1 > y AND
    PhoneState ='Active';

    IF (ActualCount > :NEW.MaxCalls) THEN
        :NEW.MaxCalls := ActualCount;
    END IF;

END;
```

### POINT 4

```
CREATE OR REPLACE TRIGGER Service
AFTER UPDATE OF MaxCalls ON CELL
DECLARE
CallSum NUMBER;

BEGIN

    SELECT SUM(MaxCalls) INTO CallSum
    FROM CELL;
    IF (CallSum <= 30) THEN
        RAISE_APPLICATION_ERROR(-20000, 'The number of active calls must be greater
        than 30');
    END IF;

END;
```